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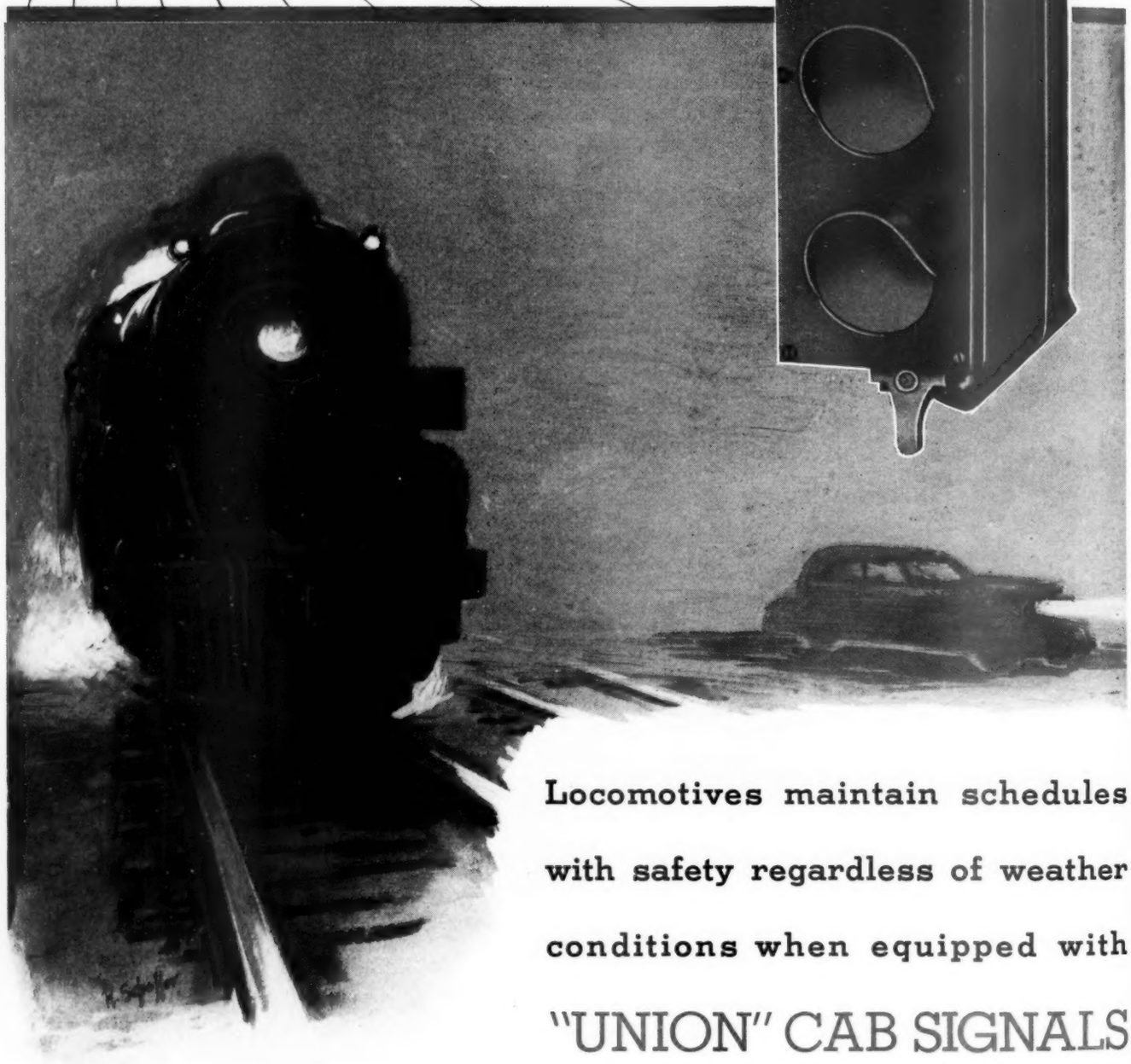

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# Can Evils of Political Coercion Be Cured by Doubling the Dose?

The present railroad crisis will not be surmounted except at a price. Whether in fact the crisis is surmounted or not depends in large measure upon whether the cost of overcoming it is assigned in a manner to promote economic balance, or further to destroy it. So far, those of the President's advisers who are vocal, seem to believe that they can place all or most of the cost of necessary readjustments upon the owners of railroad securities. They appear to have the naive conviction that the way to encourage investors to make further commitments in railway securities is to wipe out two-thirds of existing security values.

### Bankruptcy Doesn't Cure Anything

When any company or industry is irretrievably bankrupt, it should be put through the wringer and, if possible, a new start made. But before it is assumed that any railroad or the industry is irretrievably bankrupt there ought to be a careful inquiry into the causes of its condition to ascertain whether, in the public interest, those causes should not be removed. Bankruptcy, after all, is a symptom and not a cause of the present situation of the railways—and bankruptcy proceedings *per se* are no more a cure for railroad ills than an aspirin tablet would be for a broken leg.

In the last quarter of 1937 the railways earned net return at an annual rate of 1.66 per cent on their present investment in property. At this rate the amount of net operating income earned by them in a year would be about $430,000,000. This amount of net operating income would yield a return of 5 per cent a year upon an investment of only $8,600,000,000. The total investment that actually has been made in the railways is about $25,700,000,000—or about $17,000,000,000 more than, or three times as much as, they are now earning a return of 5 per cent on. The Interstate Commerce Commission placed upon their properties as of January 1, 1937, a physical valuation of about $22,000,000,000. In 1922 it held that they were entitled to earn a return of 5¾ per cent on their valuation. Such a return would amount to $1,265,000,000 annually —or about three times as much net operating income as they are now actually earning.

Thus, the trouble with the railroad industry is easily identifiable. It is not the amount of its net capitalization, although the capital structures of some individual railways need radical revision. The net capitalization of the industry is only about $18,300,000,000—much less than its investment; and yet the net operating income now being earned would yield an annual return on the net capitalization of only 2.35 per cent. These facts demonstrate that the whole trouble is that the net operating income—the margin between gross earnings, and operating expenses and taxes—being earned is too small; and there is no solution of the railroad problem under private ownership excepting to enlarge that income. On the basis of the net operating income now being earned, two-thirds of the entire capital now invested in the industry is being confiscated; and confiscating two-thirds of the existing investment in an industry is a mighty poor means of inducing new investment in it.

### Three Reasons for Inadequate Earnings

Why, then, is the net operating income being earned so small? There are three reasons: First, rates are too low; second, traffic is too small; third, prices, wages and taxes are too high.

*As to rates:* President Roosevelt and certain of his principal advisers joined recently in a public statement favoring, first, advances in prices that are relatively low to a level with those that are higher, and, second, advance of the general price level to the 1926 basis. Passenger and freight rates are the prices charged by the railways. It would require an advance of 15½ per cent in average railway revenue per ton-mile to make it as high as it was in 1926; and even then average railway revenue per ton-mile was much lower compared with commodity prices than in 1906, when effective government regulation of railway rates began.

*As to the volume of traffic:* Our neighbor, the Wall Street Journal, in a plea for a "realistic facing of the facts" regarding the railroads, contends that the industry is not self-supporting "mainly because we choose to use means of transport other than and competitive with the rails. . . . We must cut our railroad coat according to our cloth. That means consolidation. . . . It means abandonment of useless plant. And it means —if we are logical—reduction of working forces to the minima necessary for economical operation."

We do not believe that the American people have made the deliberate choice to abandon the railroads in favor of less economic competitors to the extent that they have done so. Instead we believe that they have

been inveigled into such traffic diversion largely by political acts of favoritism in behalf of the railways' rivals. Of course, it may well be that political policies favoring the railways' competitors are going to be continued indefinitely, and that the railroads might as well accept them. On the other hand, *is it going to be an easier task politically to "sell" the public on wholesale railway consolidations and abandonments than it would be to "sell" them on fair charges for the use of public property by railway competitors?*

### Competitive Handicaps Are Being Reduced

We do not think so. Passage of the Pettengill bill, of legislation subjecting carriers by water and highway to the same regulation as the railways, and of further legislation requiring all carriers to pay adequately for their use of public property, would remedy this unfair competitive situation. There has already been considerable progress in the direction of fairer competitive conditions for the railways, and there are plenty of indications that the public will support further measures in this direction. The fact overlooked by our friends who ascribe railway difficulties primarily to competition, is that there would be a dearth of traffic on the railroads today even if these competitors did not exist. To ask the railway industry to curtail its plant and its investment to conform with the degree to which competitors have rendered a part of its plant and investment *economically* obsolete is reasonable. But to demand scaling down to meet political handicaps to competition, which are probably temporary, is something quite different. And to liquidate plant and investment to conform to the present intolerable level of production and construction in this country appears to us an act of unwarranted pessimism.

"Co-ordinate; eliminate duplications of service," is the answer of those who believe in the application of the economic policy of scarcity generally, and to the railroads in particular. But why not, instead of such defeatism, abolish economic policies that are preventing such increases of investment, of production, construction and traffic as occurred almost constantly in this country throughout its entire history until within the last eight years? Why tear up railroads and reduce their service instead of causing increases of production, construction and traffic such as formerly occurred that would, as formerly, require large increases of their facilities and service? Who and what are responsible for the fact that, for the first time in the history of the United States since the first rail was laid, reductions of railroad facilities and service instead of increases of them, have recently been advocated as a solution of the railroad problem?

*As to operating costs and taxes:* The third cause of the railroad crisis is that their taxes and operating costs are too high. Nothing need be said about their taxes excepting that government has made them too high; and only government can reduce them. Most of those who are to confer with the President are government officials. They ought to be excellent authorities, at least, on why railroad taxes are too high and what should be done to reduce them. Why, then, are operating costs too high? Why have the prices the railways must pay for materials and fuel advanced so much since the bottom of the depression? Has not government pressure for reductions of hours of work and advances in hourly wages and prices been largely responsible for that? And why are railway hourly wages higher now than ever before, when freight traffic is as small as twenty years ago and freight revenue per ton-mile is the lowest since 1918? Did not mediators representing the federal government bring about and applaud the wage agreements made last year that pushed railway wages up to their present unprecedented level?

There are too many people in high places trying to find only political means of solving economic problems. You must not propose anything that will be disagreeable to a large class of voters. On the other hand, say or propose or do anything you can think of, however inimical to the people as a whole, if it will appeal to a large class of voters. This general policy has been very successfully followed throughout the present depression, especially under the New Deal.

That is, it has been a great political success—and also a success in making this the longest depression in history, including the present "recession" which has set "recovery" back to where it was about three years ago.

### Solution in Less Political Pressure, Not More

You cannot solve economic problems by political means unless political expediency and economic facts and principles happen temporarily to coincide. Any realist will recognize that, as regards the railroad problem, they do now coincide. Railway rates have been depressed below the level of commodity prices by *political* power. Railway traffic has been diverted from the railways to competitors which enjoy *political* favors, in the form of subsidies and in freedom from regulation comparable to that applied to the railways. The total volume of production and traffic in this country (including that hauled by railway competitors) has ceased to grow at the rate it formerly did, largely because of *political* interference with economic processes (such as protective tariffs and legislative favoritism to organized labor). Railway operating expenses have been driven upward by *political* policies, affecting the prices of the commodities which the railways buy and the labor which they employ. Taxes have been driven skyward by *political* policies.

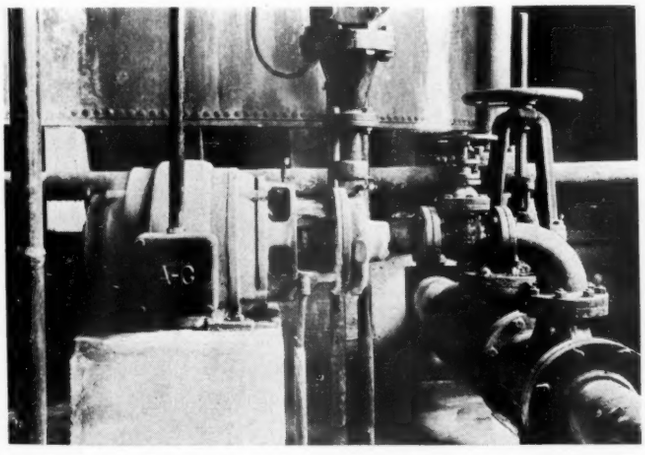
And now it is proposed to surmount the difficulties which political policies have placed in the path of the railways by another dose of politics—this time *political* measures to facilitate the expropriation of railway investors. Can the poison which is killing the industry also serve to heal it?

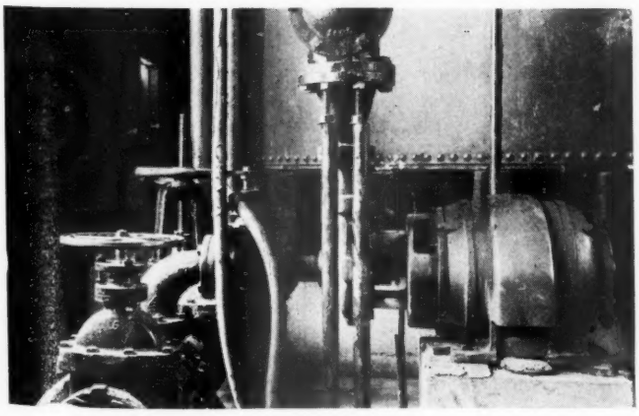
# Rock Island Saves Money By Electrifying Terminals

## Replacement of steam-driven pumps, air compressors and locomotive blower units with motor-operated equipment produces large economies

SUBSTANTIAL reductions in the expenses of operating certain of the engine terminals on the Chicago, Rock Island & Pacific are now being realized as a result of the utilization of electric power for operating auxiliary equipment that was formerly driven by high-pressure steam. At Fairbury, Neb., for instance, where the terminal comprises one of the most complete installations of electrified equipment that has been made, decreased expenses are currently providing a direct return of more than 50 per cent annually on the net additions and betterment investment. This return, moreover, does not include consideration of the savings effected in transportation expenses as a result of the smaller amount of coal that must be hauled for railroad use or of the additional revenue that is obtained through the haulage of coal to the local utility company from which power is purchased.

The first engine terminal to be electrified on the Rock Island is that at St. Louis, Mo., which this company operates jointly with the St. Louis-San Francisco, work on this project being undertaken in 1927. But the electrification program was not started in earnest until the company constructed its new engine terminal at East Des Moines, Iowa. Built in 1929 at the intersection of this company's Kansas City-Minneapolis and Chicago-Denver lines at East Des Moines to replace the less-conveniently situated terminal at Valley Junction, about eight miles west, the new terminal was completely electrified from the start.





**These Motor-Operated Boiler Fill-Up (top) and Wash-Out Pumps Were Installed at Inver Grove to Replace Steam-Driven Units**

It was when the decreased cost of operating this terminal as compared with that at Valley Junction became apparent that the Rock Island first realized the extent of the savings that could be realized through electrification. As a consequence it soon thereafter embarked on a program, that, to date, has involved the electrification of seven additional terminals, including those at Eldon, Iowa; Fairbury, Neb.; Armourdale (Kansas City), Kan.; Peoria, Ill.; Inver Grove (St. Paul), Minn.; Joliet, Ill.; and Roswell (Colorado Springs), Colo.

At each of these terminals the object was to eliminate, in so far as local conditions would permit, the need for high-pressure steam through the electrification of compressors, pumps and locomotive forced draft units. In most of the installations it was possible to carry this plan to the point where the existing steam power plants are now used only for heating purposes; hence they can be closed down entirely during a considerable portion of the year and need only to produce steam at a pressure of less than 30 lb. per sq. in. in the winter as compared with the 100 to 150 lb. required previously.

Moreover, the elimination of steam-driven equipment and the substitution therefor of electrically-operated units has made possible the use of a variety of automatic control devices, with the result that the need for manual attendance has been greatly diminished. In fact, whereas the steam-driven machines required almost constant attendance for the purpose of starting or stopping them and for other reasons, the electrified units require only occasional attention for inspection, adjustment, or lubrication.

### How Economies are Effected

How electrification operates to reduce terminal expenses is revealed in the accompanying table in which are given the expenses of operating the terminal at Fairbury in 1935, the last full year of operation prior to electrification, and in 1937. At this point engines were formerly fired up by steam blowers and steam was used for operating the air compressor, the chemical pumps in the water treating plant, the boiler wash-out and fill-up pumps, for washing the exteriors of locomotives and for heating the roundhouse, auxiliary shop buildings, the

freight house offices and the passenger station. As a result of the electrification program all the foregoing functions, except the heating of the buildings, are now performed by electric power.

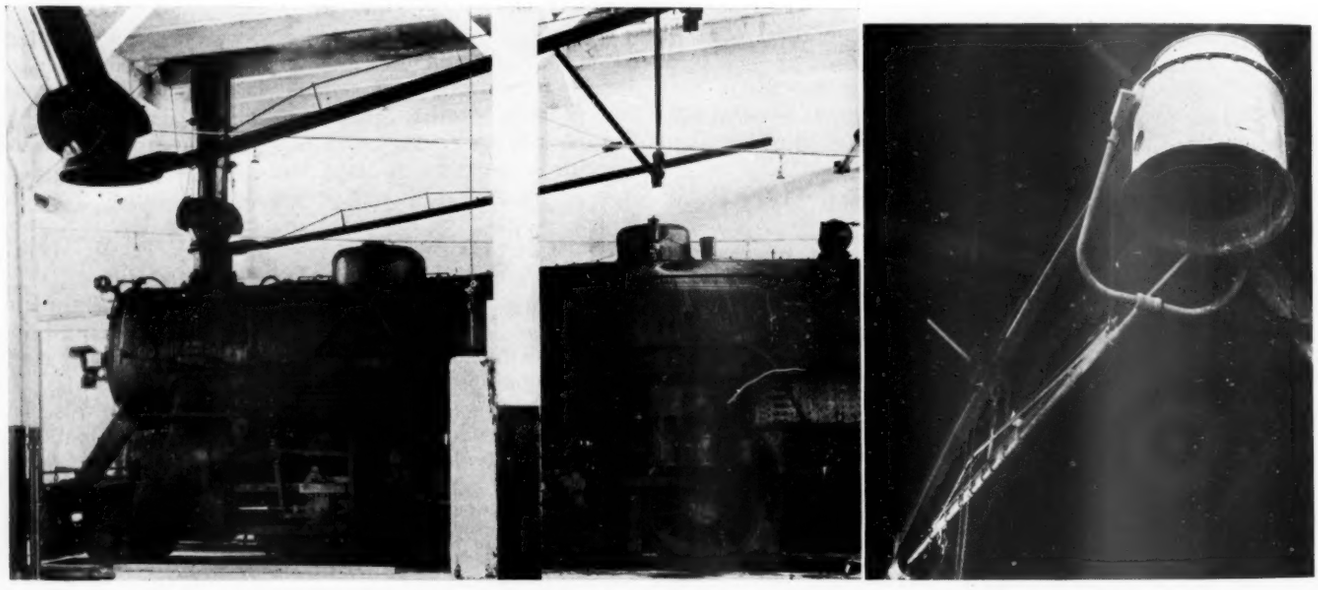
As will be seen from the table, the net decrease in the cost of operating this terminal in 1937, as compared with 1935, was $6,946.21, which represents a return of 50.5 per cent on the net additions and betterment investment of $13,775. Moreover, since the consumption of coal was reduced 3,338 tons, recognition should be given to the saving in transportation expense represented by the reduced haulage of coal. Since the average haul for coal shipped to this point is 307 miles, the saving amounts to 1,024,766 ton-miles, which, on the basis of 5 mills per ton-mile, represents a further reduction in expenses of $5,125.83. Giving effect to this figure the total saving for 1937 amounted to $12,072.04, increasing the return on the investment to 88 per cent. As pointed out previously, these figures do not reflect the increased revenue which the railroad realizes on the transportation of coal for the power company, nor do they give consideration to the fact that, because of better business for the year as a whole, activity at the terminal in 1937 was substantially greater than it was in 1935.

**Engine Terminal Expenses at Fairbury, Neb., Before and After Electrification**

| | 1935 | 1937 | Decrease |
|---|---|---|---|
| Labor to Operate | $6,105.96 | $2,697.09 | $3,408.87 |
| Supplies | 82.65 | 45.81 | 36.84 |
| Water | 847.19 | 544.35 | 302.84 |
| Electric Light | 67.84 | 80.81 | *12.97 |
| Cost of Fuel | 10,896.17 | 4,876.99 | 6,019.18 |
| Labor Handling Fuel | 921.90 | 495.05 | 426.85 |
| Maintenance | 1,156.62 | 734.04 | 422.58 |
| Electric Energy | 824.13 | 4,482.11 | *3,657.98 |
| | $20,902.46 | $13,956.25 | $6,946,21 |

* Increase.

equipment that was being operated with steam included the pumping station, the boiler wash-out and fill-up plant, the feed-water pump for supplying the stationary boilers, the locomotive forced-draft units in the engine-house and the air compressor. All those units now consist of electrically-operated equipment.



**These Views Show the Two Types of Locomotive Drafting Units That Were Installed as Part of the Terminal Electrification Program**

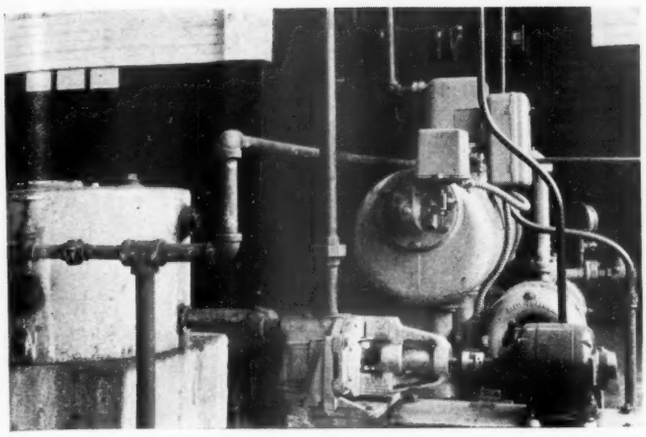
Referring again to the table, it will be noted that the largest savings are effected in the cost of fuel and in the labor to operate the terminal, with smaller, though not inconsiderable, reductions taking place in the cost of water, the labor of handling fuel and in maintenance. These savings were, of course, only partially offset by the increased consumption of electric energy.

### At Inver Grove

Owing to variations in local conditions, each of the terminal electrification projects has constituted an individual problem. From a mechanical viewpoint, however, the various installations have much in common and, for purposes of description, that at Inver Grove may be considered fairly typical. The principal facilities at this terminal, where the electrified units have not been in service a sufficient length of time to permit the compilation of conclusive cost figures, are a 12-stall engine-house, repair shops (in which the machines had been electrified previously), a boiler wash-out and fill-up plant, a coaling station, a steam power plant, and a water-treating plant of the continuous type to which water is supplied from a deep well on the grounds. At the time the electrification program was undertaken the

The electrified compressor that was installed at Inver Grove to replace the steam-driven equipment consists of a 6-cylinder, 2-stage, air-cooled unit which delivers 250 cu. ft. per min. under a discharge pressure of 125 lb. per sq. in. The new compressor is driven, through a multiple V-belt drive, by a 60-hp. line start induction motor which, as with all other motors in the installation, is wound for 3-phase, 60-cycle, 440-volt current.

A noteworthy aspect of the compressor installation is its automatic control feature. This consists of a dual control unit which, through the use of a small transfer switch, permits operation of the compressor through either by-pass or start-and-stop control. In the former case the motor and compressor are operated continuously and regulation of the amount of air produced is accomplished by means of a trigger valve which holds open the suction valves of the compressor when the pressure in the air reservoir reaches 125 lb. per sq. in. and allows them to resume normal functioning when the pressure drops to 115 lb. In start-and-stop control the motor



Showing the Feed Water and Suction Pumps That Serve the Stationary Boiler at Inver Grove

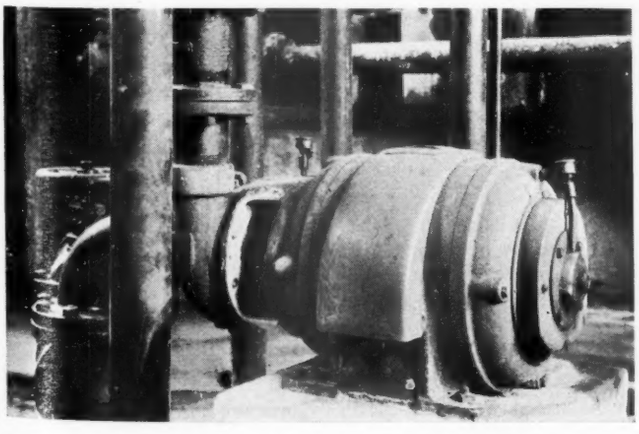
and compressor operate intermittently and are cut in or out at the same pressure levels that apply when the by-pass control is used. As a rule the compressor is controlled by means of the start and stop feature.

### In the Wash-Out Plant

In the boiler wash-out and fill-up plant, the pumping units formerly consisted of a 16-in. by 10½-in. by 12-in. duplex steam-driven pump for filling up and a 12-in. by 8½-in. by 12 in. duplex steam unit for washing out the boilers. Each of these units has now been replaced by a centrifugal pump having a capacity of 100 gal. per min. against a head of 225 ft., which is operated by a 15-hp. line start induction motor. Both motors are manually-controlled by means of push buttons located at convenient points in the enginehouse. To guard against delays to the enginehouse operations as a result of failure of either the wash-out or the fill-up pumps the piping is so arranged as to permit either of these pumps to perform the function of the other.

Under steam operation exhaust steam from the wash-out and fill-up pumps, as well as blow-down steam from locomotives, was used for heating the fill-up water. However, as a consequence of the removal of the sources of exhaust steam, it was found that, in order to maintain the boiler fill-up water at the desired temperature, it is necessary to utilize a greater proportion of the blow-down steam than had formerly been the case.

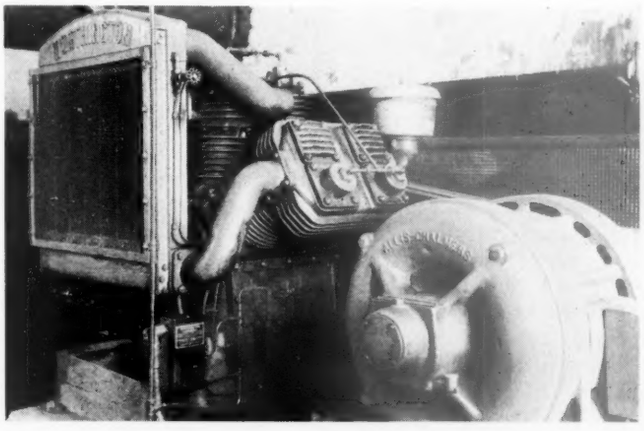
This has been accomplished (1) by requiring that the locomotives be blown down completely in the enginehouse instead of partly out-doors as was the practice previously, thus providing a larger supply of steam, and (2) by the provision of means of obtaining the maximum heat value from the steam for use in heating the fill-up water. The latter was accomplished by installing a pump for taking water from the fill-up tank and injecting it by means of sprays into a condenser chamber into which is admitted blow-down steam as it comes from the separator. From the condenser the fill-up water is conducted back to the tank through a drop leg. The circulating pump, which is controlled automatically by means of a Mercoid switch, consists of a centrifugal unit with a capacity of 300 gal. per min. against an 80-ft. head, and is operated by a 10-hp. motor.



A View of the Motor-Operated Pump That Was Installed to Circulate the Water in the Fill-Up Tank at Inver Grove

### Water Pumping Equipment

In the water pumping plant the facilities formerly consisted of a 14-in. by 9-in. by 12-in. duplex steam pump for delivering supplies to the treating tank and the drinking water lines, and a 14-in. by 10-in. by 18-in. duplex steam pump for fire-fighting service, both of which were located in the boiler house. In the electrification program the general service pump was replaced by a centrifugal pump with a capacity of 250 gal. per min., which is operated by a 7½-hp. motor, while the steam fire pump was replaced by a centrifugal unit with a capacity of 500 gal. per min. The latter is direct-connected to a 40-hp. motor. The new set-up also includes a small pumping unit operated by a ⅓-hp. motor for supplying drinking water under certain conditions.



The Steam-Driven Compressor at Inver Grove Was Replaced With This Motor-Operated Unit

Operation of the drinking water and general service pumps is subject to a complete system of automatic control. The general service pump which supplies water to the drinking water and other lines as well as to the treating tank, continues to operate until the treated water tank becomes full. When this happens a float control causes an electric valve in the treating tank to close, with the result that the pressure in the line from the pump begins to build up. When this pressure reaches 30 lb. per sq. in., a pressure switch causes the general service pump to cut out and the small drinking water pump to cut in, which operates until the pressure in the line reaches 40 lb. per sq. in.

With this system of operation, frequent starting and stopping of the 7½-hp. motor as a result of sudden

(*Continued on page 410*)

# Welding of Railroad Rolling Stock*

## A review of welding as applied to the design of freight, tank and passenger cars

**By V. R. Willoughby†**

UP TO 1927 the use of welding in new car equipment was, except in very isolated cases, only incidental. What has happened in the last ten years?

### Box and Hopper Cars

In 1930, the Baltimore & Ohio built at its Mt. Clare shops, Baltimore, Md., a 95-ton all-welded steel hopper car. This car has been in the Baltimore & Ohio coal service since that time and periodical inspections have fully justified the confidence of the designers in a welded car.

In 1931, Pullman Car & Manufacturing Company designed and built five all-welded 70-ton hopper cars for the Chicago Great Western. The light weight of this car was 45,900 lb. Compared with 50,200 lb. the weight of probably one of the lightest riveted designs of 70-ton cars, there is obtained a weight saving of 4,300 lb. Inasmuch as the hopper car is generally loaded to its full rail capacity, this welded car can carry 164,100 lb. of pay load, whereas the riveted car referred to can carry only 159,800 lb. This means that for each trip the welded car can carry 4,300 lb. more pay load than the riveted car, or almost 2.7 per cent more and without any additional transportation cost. This car had many unique features of construction such as gas welding for assembling the heavy frame parts and electric arc welding for the thinner members.

In 1931, the Chesapeake & Ohio placed five 50-ton gondola cars in service. These cars were equipped with a one-piece cast-steel underframe. The floors and superstructure were of welded construction. Later in the same year they built a similar car but with a rolled-steel riveted underframe, the floor and superstructure being assembled by welding. These cars were placed in heavy service, were carefully watched and the latest reports are very favorable toward welding. In these cars all welding utilized the electric arc.

In 1931 the American Railway Car Institute, in conjunction with the Car Construction Committee of the Association of American Railroads, was requested to design a standard box car using open-hearth steel with riveted construction. Reasonably light weight was desirable.

In approaching this design one of the first things the builders' engineers considered was the center sill construction. Two rolled structural members tied together at their tops by a cover plate, riveted in place was the prevailing practice. The center sill is the backbone of the car underframe and must resist all buffing shocks as well as other stresses imposed upon it by the lading.

The car builders' engineers felt that a sill rolled in one piece would make a better construction than one built up of three pieces. The rolling of a unit sill, however, was not at all practical. By welding together two specially designed Z-sections, along the top center line, a one-piece sill construction was formed, attaining the practical advantages of a unit-rolled sill.

Due to changes in dimensions in the sill construction this new construction resulted in a better sill. Eccentric sill loads, especially those due to buff, were practically eliminated. This new construction was stronger with its 21.3 sq. in. cross-sectional area than the old design of sill with an area of 28 sq. in., the same class of steel being used in both, namely, open-hearth.

In the 40-ton box car this change in sill construction effected a weight saving of approximately 1,100 lb. per car. Exhaustive buffing and loading tests proved that this new sill was superior to the older sill. Welding, of course, cannot be credited with all this saving, but it played an important part.

Since then many thousand, in fact nearly all the house cars and a goodly number of the open top cars are using this double-Z-section sill which is the A. A. R. standard.

The economic advantages of handling cement as well as other dry commodities in bulk, rather than in sacks or packages, calls for specially designed equipment. The lading must be fully protected from weather and the design must facilitate quick loading and unloading.

To meet the situation, in 1932 A. C. F. designed and built a 70-ton covered hopper car. In order that the lading might be discharged freely it was absolutely necessary that the interior of this car be as smooth as possible. To accomplish this, welding was used in the joining of all members which came in contact with the lading, making possible a perfectly smooth interior. The underframe parts and the roof construction were riveted. This type of car has been very successful. A goodly number of cars constructed after this manner have been built for the handling of cement, carbon black as well as other dry bulk commodities. Without welding it would have been impossible to have obtained the necessary smooth interior necessary for the free discharge of the lading.

From this time on the use of welding in freight equipment progressed rapidly. There are numerous instances of small numbers of cars of the gondola and hopper type, in which welding played an important part.

In 1935 The Pullman Standard Car Manufacturing Company fabricated a 50-ton welded steel box car. Alloy steels were freely used in the construction of this car. The frame members were assembled by arc welding, and the sheets were secured to the frame members by spot welding. Final assembly of the car was by means of arc welding. Due to the combination of alloy steels, both rolled and cast, as well as welding, an extremely light car was obtained. Figures which we have at hand indicate—trucks 13,960 lb., car body 20,240 lb. or a total of 34,200 lb. This is approximately 10,000 lb. less than

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* Abstract of paper presented at Annual meeting, American Welding Society, Atlantic City, N. J.

† Mr. Willoughby is now vice-president in charge of engineering, American Car and Foundry Company, New York.

the A. A. R. standard 50-ton, 40-ft. box car using open-hearth steel and riveted construction.

This car was thoroughly tested by the A. A. R. Division of Equipment Research, and while some weak points developed and some welds failed, still it was a well-balanced design and improvements in welding technique will remove practically all of defects due to welding.

We will not attempt to list all of the designs brought out and built during the last two or three years. They have been many and cover every class of car, as well as numerous details incorporated in car bodies and trucks.

The A. A. R. held its convention last June here in Atlantic City, the first in seven years.

A survey of the track exhibits will give a good gage of how far welding has invaded the car construction field. Among these track exhibits there were:

A light-weight box car, of a later design than the one referred to above. It was as its predecessor, of alloy steels, welded construction, but to the latest A. A. R. proposed standard dimensions. It represented about 10,000 lb. saving over the proposed A. A. R. car of open-hearth steel and riveted construction.

A steel frame, steel sheathed refrigerator car wherein practically all the steel parts were joined by welding.

Two covered hopper cars from two different roads, where the smooth interior was obtained by welding, the most of the remaining parts were assembled by riveting.

An all-welded flat car, a welded box car underframe, a welded underframe for a caboose car, etc.

The August 7th issue of the *Railway Age* describes the Delaware and Hudson activities. This shows an all-welded hopper car, and a lot of 100 box cars, again of all-welded construction.

Yes, welding has definitely been accepted as a method in freight-car construction.

## Tank Cars

Prior to 1927 welding was used quite extensively in the assembly of the insulation jacket, that is, the outside cover for insulated tank cars. Welded steam coil joints were fast replacing the screw connection. Isolated cases of steel tanks were constructed for experimental service.

In 1928 the Niacet Chemical Company placed in service an aluminum tank of welded construction. This car was operated under a special permit of the I. C. C. for experimental service. By March, 1930, it had a service record of 22,000 miles. This car was fitted with an impact recorder for the first 2,000 hours of its operation and successfully withstood 3,500 impact shocks (900 of which were severe) with no damage to the welds.

Due to the inability of the Aluminum Company to furnish large enough sheets, 16 sheets were used to form the tank shell in place of three, which is now the practice.

Aluminum was used in this tank because steel was not suitable for the lading.

An A. C. F. welded aluminum car of recent construction was on the exhibition track at the A. A. R. convention.

Tanks used in the transportation of dangerous or corrosive liquids, must be built to specifications established by the I. C. C. The I. C. C. were non-receptive to fusion welded construction in car tanks. In 1930 the I. C. C. ruled against the use of welding for constructing spherical car tanks by welding together two spun hemispheres.

The growing need for car tanks to handle liquefied petroleum gas, which could be transported only in forge welded tanks, was viewed with envy by the fusion welding advocates. After many ups and downs, including several hearings before the I. C. C. permission was given to construct for experimental service a total of 36 tanks. This has now been increased to 312. The welds in these tanks must be X-rayed. The entire tank as a unit must be stress-relieved. This in addition to the usual hydrostatic tests.

## Passenger Cars

What is the story of welding in the passenger train car? It was in the passenger-train car that welding was first used in car construction.

Shortly after the advent of the steel passenger car many light members such as furring clips, tapping strips, etc., were attached by spot welding. Welding was also used to make weather-tight joints, especially around window openings and a little later for sealing the joints between roof sheets.

One of the early examples of a passenger car welded construction is found in the Budd-Michelin Rail Car. This car construction was fabricated from extremely thin sheets of stainless steel (18-8). The Zephyrs built by the Edw. G. Budd Manufacturing Company utilized the same type of construction, namely: trusses, formed from very thin sheets of stainless steel (18-8), joined together by a current measured spot weld.

In the two trains designed and built by A. C. F. in 1934, for the Baltimore & Ohio, the Duryea center sill construction was assembled by welding. On both trains, that is, the alloy-steel and the aluminum, the side sheets were butted together and welded.

In 1935, American Car & Foundry Company designed and constructed for the Gulf, Mobile and Northern, two streamline trains in which the outside of the cars were perfectly smooth, that is, no rivet heads appeared. The car side sheathing as well as the roof sheets were attached to their frame members by spot welding. The roof and sides were built up in reasonably short sections and assembled at the car by riveting the structural members together, the joints in the outside sheets being made by arc welding. The absence of rivets, obtained by means of spot welding, enhanced the appearance of these cars greatly. Practically all passenger cars constructed within the last three or four years have utilized welding more or less, in their construction. The trend is to increase the amount of welding, using the spot where possible, otherwise using the arc.

Weight saving is an extremely important factor in passenger train cars, especially where propelled by an internal-combustion engine. Welding is a very important implement in this weight reduction. Many new steel alloys have been brought forth by the various steel companies. One of the first questions the passenger car designer asks is how does this material weld.

We find that various railroad shops, as well as all of the passenger car equipment builders have built cars with welded construction. The equipment required to weld a passenger car economically is very expensive. Large and sturdy jigs must be built on which the framing members may be laid and securely held in accurate position, for welding. Spot welding of the closure sheets by means of automatic machines which will pass over the work held in the aforementioned jigs, is becoming the accepted method. The heavy steel castings which in the past formed the end and bolster portion of the underframe, are now being supplanted by a welded construction of rolled-steel shapes and plates.

Modern passenger train design calls for a well balanced structure which in reality is in the form of a large tube. The entire structure is the load-carrying member. Designers have found and are finding that welding pro-

vides the best means for obtaining this balanced structure.

Records of the last year or two makes it very evident that welding has taken its place along with the riveting, in modern railway car construction.

### What of the Future?

The cars of welded construction which are now in service are being watched very carefully. The service records of these cars will largely influence the future application of welding in railway rolling stock.

There is no doubt but that welding lends itself equally well to weight saving as it does in obtaining a balanced design. Overlapping joints may be eliminated. Weakening of members by rivet holes will disappear. When thin sheets are riveted to their structural members it is the bearing value of the sheet on the rivet that is generally the limiting factor. By spot welding the strength of the connection can be made equal to that of the sheet without any detracting from the strength of the sheet.

It is the author's personal opinion that the car of the future will be largely assembled by welding. This is especially true for such welding as may be done in the sub-assembly. However, the final assembly on the building track, it is the author's belief, will be by riveting.

It will, therefore, be the economic cost that in the final analysis will act as a gage, and the wise designer will utilize welding or riveting, dependent upon which is best adapted to the individual operation.

## Rock Island Saves Money By Electrifying Terminals

(*Continued from page 407*)

fluctuations of pressure in the drinking water line is prevented. The proper relationship between the functions of the two pumps is maintained by means of a time-delay control device. To permit the general service pump to be used in emergency to furnish water for fire-fighting purposes, a cross-connection is provided with the line from the fire-fighting pump. A check valve in this connection prevents the flow of water in the reverse direction.

All three water service pumps are located directly over the well at the bottom of a pit 12 ft. deep which is covered by a small frame shed. In this shed, which is in a central location where it can be reached quickly from any point in the terminal area, there is provided a hand-operated switch controlling the fire pump. By means of the same switch the 7½-hp. motor of the general service pump is also subject to manual control.

### Feed-Water and Condensate

Under steam operation, feed water for the stationary boilers was pumped by a 7¼-in. by 4½-in. by 10-in. duplex steam pump, while condensate was handled to the boilers by a 6-in. by 8-in. by 12-in. vacuum pump. In the electrification program this equipment was replaced by a combination suction and feed water pump and a make-up pump. The former consists of a centrifugal vacuum heating pump powered by a 5-hp. motor while the make-up unit is a turbine pump driven by a 3-hp. motor.

With this set-up the combination pump is normally used only for the handling of condensate and the feed-water pumping feature of this unit is utilized only in case of failure of the make-up pump. Automatic control of the vacuum pump is accomplished by means of a float in a sump, which actuates the motor through a magnetic switch. By means of a three-position control switch the vacuum pump may be operated (1) continuously, (2) with the vacuum off and float on, or (3) with the vacuum on and float on. Automatic operation of the make-up pump is effected by means of a Mercoid switch which is operated from a diaphragm control that is regulated by the level of the water in the boiler.

At 8 of the 12 stalls in the enginehouse the steam-operated forced-draft blowers formerly used were replaced by a type of blower that consists, at each stall, of a fan driven by a 7½-hp. motor, both the fan and the motor being mounted on a frame located on the enginehouse roof. The lower end of each blower is automatically adjustable, both vertically and in a direction parallel to the track, so that locomotive stacks of different heights are readily engaged.

While the foregoing description of the work at Inver Grove gives a general idea of what was done in the electrification of each of the terminals mentioned the other installations show variations in the types and sizes of equipment used and in some cases local conditions required a different handling of certain phases of the problem. For instance, water supplies are obtained from streams at several points while at others they are derived from municipal sources. Likewise, at Armourdale, because of the need for supplying steam to the waste reclaiming plant, it is still necessary to generate high-pressure steam in the stationary boilers throughout the year. Furthermore, at a number of the locations the forced draft units that were installed are of a type that is moved from stall to stall on an over-head trolley. Again, in connection with the electrification program the water-treating plants at several points were changed over from the intermittent to the continuous type, to enlarge their treating capacities and to render them more susceptible to automatic control.

The terminal electrification program was initiated under the general supervision of W. H. Peterson, chief engineer of the Rock Island until his retirement on April 1, 1937, when he was succeeded by R. H. Ford. The plans have been developed and the work carried on under the direct supervision of A. T. Hawk, engineer of buildings, with the assistance of L. C. Bowes, engineer of shop plants and machinery. The electrification work at Eldon, Fairbury, Peoria, Inver Grove and Joliet was done under contract by the Railroad Water & Coal Handling Company, Chicago, that at East Des Moines and St. Louis was carried out by local concerns and that at Roswell and Armourdale was done by company forces.

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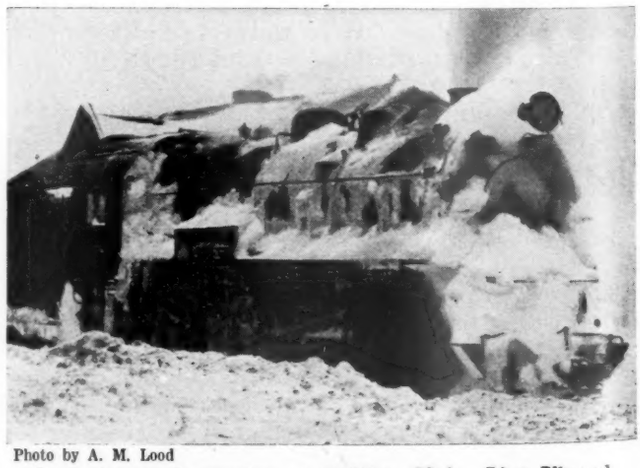

Photo by A. M. Lood

**Pennsylvania Locomotive at Cadillac, Mich., After Blizzard**

# Train-Limit Hearings Resumed

## Dr. Parmelee tells House committee that bill will cost the railroads more than $100,000,000

WASHINGTON, D. C.

HEARINGS on S. 69, the train-limit bill, were resumed before the House committee on interstate and foreign commerce on March 1, after a week's recess. Railroad witnesses were again heard in opposition to the measure. When the opening hour arrived, with only three members of the committee on hand, Representative Mapes of Michigan remarked to Chairman Lea that he felt that they should have present at least a quorum of the committee, which is 14 members, if they were to take the time of the witnesses who had worked hard to prepare lengthy statements for inclusion in the record. Chairman Lea was of the opinion that if the hearings were ever to be concluded, it would be necessary to hold hearings regardless of how many members could be induced to attend. Nevertheless, Mr. Mapes stood on his request for a quorum with the result that it took the clerk of the committee three-quarters of an hour to get the requisite number into the committee room.

R. W. Brown, vice-president in charge of operation and maintenance of the Reading and the Central of New Jersey, whose previous testimony was reported in *Railway Age* of February 19, concluded his statement. In answering a question of Representative Bulwinkle of North Carolina, Mr. Brown defined a "long" train as one containing the maximum number of cars that a locomotive can haul. He also told Mr. Bulwinkle that he could see no reason for any restriction in the length of any freight train. According to the witness, no problem existed for the engineer relative to the length of the train. All the engineer was concerned with, Said Mr. Brown, was whether or not his air pressure was working. Also, he did not feel that the question of an inspection by the train crew of the condition of the cars was important, as his road had often had wrecks which were caused by cars very near the rear of the train where defects could have been detected by the members of the crew occupying the caboose.

Chairman Lea wanted some information about the number of locomotives purchased annually by the carriers, and Mr. Brown supplied the figures. Answering another query regarding the average life of a locomotive, Mr. Brown told Chairman Lea that the carriers figured it to be about 32 years, but that owing to their financial condition in the last few years, there are now in service numerous locomotives which are over 40 years of age. At the present time, he said, there are 44,162 engines in service.

### Testimony of Dr. Parmelee

Mr. Brown was followed by Dr. Julius H. Parmelee, director of the Bureau of Railway Economics of the Association of American Railroads, who presented a detailed statement showing how much the railroads estimate the passage of the bill will cost them in the running of an increased number of trains. Dr. Parmelee began his statement by telling the committee that the enactment of the bill would "be disastrous not only to the rail lines themselves but to the entire economic and financial structure of the nation. He went on to add that even though the roads are allowed some increase in their rates by the Interstate Commerce Commission, they will not be in a position where they can stand the burdensome restrictions which enforcement of such a law would impose."

When Dr. Parmelee asserted that a survey of freight train operations for four representative months in 1936 showed that 42.7 per cent of the total freight car miles in that year were handled in trains of more than 70 cars, Mr. Mapes wanted to know what the average length would be for the local or way freights. Dr. Parmelee wouldn't hazard a guess on this subject.

"Any arbitrary addition to operating costs," said Dr. Parmelee, "imposed now or in the near future, will throw the industry into an even worse state of bankruptcy than at present, with disastrous effect on the economic and financial structure of the whole country. The money that the enactment of a train-length bill would cost can not come out of the railway treasuries, because there is no money there; the carriers have scraped the bottom of the barrel already. Additional costs can come only out of the pockets of railway shippers and users, in the form of higher rates on the products of the farm, the mine, and the factory, or out of the pay envelopes of a million railway employees, in the form of a lowered scale of wages rates.

### Discusses Financial Plight of Carriers

"The railroad industry has just completed a series of seven lean years, 1931 to 1937 inclusive. The net railway operating income during those seven years averaged less than two per cent per year on their investment; the last year, 1937, was only 2.3 per cent. Out of net railway operating income, interest and fixed charges must be paid. In that seven-year period, the equivalent of more than half the railway mileage of the United States failed to earn the interest and other fixed charges. It is clear that an industry whose return had maintained such low levels as these, consistently over a period of seven years, is in the weakest kind of financial position today.

"Because of that protracted situation of financial weakness, company after company has been forced into receivership or trusteeship, so that today a larger proportion of railway mileage is being operated by the courts than at any time in American history."

Dr. Parmelee went on to say that the principal factors leading to this weakened financial condition of the industry have been the depressed volume of traffic, increased costs of operation, and a consistent decline in freight and passenger rates.

Based on the traffic volume of 1937, Dr. Parmelee told the committee that "an arbitrary restriction of 70 cars would increase the annual operating costs more than $100,000,000 per year." Also, he felt that it would necessitate an increase of more than half a billion dollars in capital costs for additional equipment, additional tracks to accommodate the increased number of trains, rear-

rangement of yard facilities, increased signaling facilities, new and enlarged engine houses and many other items.

In the opinion of the witness, "the annual carrying charges thus imposed, together with additional maintenance and operating costs, would add greatly and unnecessarily to the annual cost of rail transportation. When traffic increases to higher levels, capital expenditures in even greater amount would be needed. Despite the need for additional capital that would thus be created, it is a serious question whether the carriers in their present financial condition could raise the capital at all."

### Bill Would Affect 98.6 Per Cent of Roads

Continuing his prepared statement, Dr. Parmelee pointed out that railroads operating 98.6 per cent of the total Class I mileage ran trains of more than 70 cars during four representative months of 1936. "Thus," he declared, "practically all Class I railroads would be affected by the enactment of this bill." Dr. Parmalee estimated that approximately 1,167,000 freight trains of more than 70 cars were operated in 1937. Had this bill been in effect, he said, the carriers would have been required to operate 596,000 additional trains or an increase of more than 50 per cent. Dr. Parmelee also told the committee that his estimate of $100,000,000 in added expense did not include an estimate of the increased cost to shippers because of delayed shipments.

Answering a query of Representative Martin of Colorado, the witness said that the total operating cost of the railroads during 1937 was $3,119,000,000.

Concluding his statement, Dr. Parmelee informed the committee that "the carriers have at the present time a certain amount of reserve equipment, which is used as a protection against emergencies and periods of peak traffic movement. To maintain such a reserve, which is necessary to insure the adequacy of transportation facilities, more than 2,000 additional locomotives and 2,000 additional cabooses would be needed at once, if a 70 car limitation were placed on freight trains. Additional freight-carrying cars would also be needed, because reduced road speeds and resulting congestion, as well as increased terminal delays, would reduce the average movement per car. More cars would, therefore, be needed to handle the same volume of traffic. This alone would require capital expenditures of more than $250,000,000.

At the same time that the railroads were resuming their attack on the bill, the Railway Labor Executives Association announced that it had formally indorsed the bill at a meeting in Washington last week. For several years the association has been on record as favoring this type of legislation, and last week's action was an approval of the specific bill now before the House.

### Dr. Parmelee Questioned by Committee

After completion of his prepared statement, Dr. Parmelee was questioned extensively by various members of the committee. Representative Eicher of Iowa wanted to know how much of the $100,000,000 increase in operating expenses necessitated by the passage of the bill would accrue to labor. Dr. Parmelee explained that there would be an increase of $1.37 per train mile and that out of this amount, about 70 to 75 cents would go to labor in all forms. Answering a question of Mr. Bulwinkle's, the witness said that he believed the bill would cause the carriers to increase their forces by about 30,000 men. He went on to explain that this was a "rough" estimate.

Representative Wolverton of New Jersey asked Dr. Parmelee whether or not, when he was testifying before the Interstate Commerce Commission in the present rate case, he took into consideration the increased expense of this bill in presenting statistics relative to the financial condition of the railroads. The answer was that he had not considered either this bill or any other piece of legislation.

Representative Halleck of Indiana was curious to know what rate of return the industry had paid on its common stocks during the last few years. Dr. Parmelee supplied this information by citing the following rates of return: 1931, 4.01 per cent; 1932, 1.5 per cent; 1933, 1.58 per cent; 1934, 2.13 per cent; 1935, 2.04 per cent; and 1936, 2.33 per cent.

Turning to another subject, Representative Eicher said, "Don't you think that in view of the fact that we now have a definite system of competition for short distances in the form of the truck, that it would be a good idea for us to allow the trucks and the railroads to fight it out for the business?" Dr. Parmelee thought that it was a good idea and added that such a policy was being followed to a certain extent at the present time.

Representative Kennedy of New York inquired as to whether Dr. Parmelee presented his statistical study to the Senate Interstate Commerce Committee when the present bill was before it. He replied that he had not presented it in the present form for the reason that the Senate committee has not held hearings on a train-limit bill since 1935. There was some discussion on the effects of the undistributed profits tax on the railroads, and the witness said that they would like to see it repealed, but admitted that unless revenues of the carriers got much better, very few of the roads would have to worry much about the effects of the law.

### Symes Tells of New York Situation

The next witness for the opposition was J. M. Symes, vice-president in charge of maintenance and operation of the Association of American Railroads, who devoted his time entirely to telling the committee the effects, which, he believed, the bill would have on the handling of freight in New York City. Mr. Symes pointed out how New York presents "the most complicated railroad operating problem to be found anywhere, and any interference with train operation would have a far reaching effect on the people and industry in that area."

After carefully pointing out to the committee on a large map the difficult problem of carrying both freight and passengers to and from New York, Mr. Symes warned the committee that "if the 70 car train limit bill were in effect and traffic returns to anything near normal, this Congress would have the entire city of New York asking that the Act be rescinded.

"You cannot take away a service to which that city is accustomed and to which the inhabitants are entitled without far reaching effect. What I have said regarding New York applies quite generally to other metropolitan areas."

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THE CANADIAN NATIONAL spent during 1937 a total of $3,194,733 for the construction of its new line between Senneterre, Que., on the northern transcontinental line, through northern Quebec to Rouyn, according to a report to the Canadian House of Commons. It is further reported that 41.2 miles of the total of 99 miles of road to be built have been completed and two bridges built. The initial estimate for the entire job, when authorized in June, 1936, was $5,940,000.

# Senate Hearing on Pettengill Bill

## Sessions before committee on interstate commerce get under way with Chairman Wheeler's announcement that he wants to bring measure before upper body

WASHINGTON, D. C.

SENATE interstate commerce committee hearings on the Pettengill bill (H. R. 1668), providing for repeal of the long-and-short-haul clause of the Interstate Commerce Act's fourth section got under way on February 24 with Chairman Wheeler's announcement that so far as he is concerned he wants to give the committee an opportunity to vote on the measure at this session of Congress, and also to take it up in the Senate if that body so desires. The bill passed the House of Representatives by a vote of 268 to 120 on April 14, 1937, during the first regular session of the present Congress; and a similar measure was previously passed by the lower branch on March 24, 1936.

The presentation on behalf of the railroads was opened by Judge R. V. Fletcher, vice-president and general counsel of the Association of American Railroads, who located "the heart of our grievance" in the vesting of the Interstate Commerce Commission "with the authority of a traffic manager." He was not surprised at the Interstate Commerce Commission's opposition to the bill, because the I. C. C. "like any other government body will oppose any bill which curtails their bureaucratic authority."

Despite his above-mentioned disposition to let the bill have its day in court, Senator Wheeler's questioning of Judge Fletcher indicated that the chairman's own attitude may be influenced by his recollections and accounts he has heard of the adverse affect on Montana shippers of the rate situation before the 1910 amendments tightened up the fourth section.

### Opponents Want 60 Days—Wheeler Says "No"

Johnston B. Campbell, former member of the Interstate Commerce Commission, appeared as spokesmen for the opposition, which he said would require 60 days to present its case. When Senator Wheeler said "You can't have 60 days," Mr. Campbell protested that he had witnesses from "every state"; and he told Senator Davis of Pennsylvania that the bill did not have a complete hearing before the House committee. Judge Fletcher estimated that the railroad presentation would require about six hours, although there will be additional testimony in favor of the measure, offered by various interests on their own behalf.

First among the latter was J. H. Donnell, general manager of the Tampa (Fla.) Traffic Association and traffic director of the Tampa Chamber of Commerce, who appeared also for Miami and Jacksonville traffic interests. Mr. Donnell asserted that he was not testifying at the suggestion of any railroad; he was appearing in support of the position of the National Industrial Traffic League, at the instigation of which the Pettengill bill—which "is not a railroad bill" but a "shippers' bill"—was introduced. He was not fearful of results which would follow long-and-short-haul clause repeal because he thinks "It would require considerable imagination to visualize a modern-day railroad starting out on a program of conquest by rate cutting with a shackle extending from one leg to section 1 of the Act, with another shackle extending from another leg to section 2 of the Act, a stout rope extending from its neck to section 3 of the Act and a Damoclean sword suspended over its head from section 15 (the minimum rate section.)" In other words it was Mr. Donnell's view that these four sections "serve to guarantee the maintenance of railroad rectitude, if any guarantee be necessary; and moreover they constitute a continuing guarantee."

### Minton, Seeing Tariff, Is "Almost Sold"

Joseph G. Kerr, chairman of the Southern Freight Association, scored a point when he introduced as an exhibit a tariff in which the railroads had been required to incorporate 160 pages in order to publish routings and restrictions designed to comply with conditions attached by the Interstate Commerce Commission to a fourth-section order. "You've almost sold me on the virtue of the bill with these exhibits," said Senator Minton of Indiana, who was presiding at the February 25 session in the absence of Chairman Wheeler. Meanwhile J. M. Hood, president of the American Short Line Railroad Association, had appeared to ask the committee to remove from that organization's members "the burden of preparation of fourth-section-relief applications and to extend to them the opportunity of competing on equal terms with other forms of transportation," both of which, he added, would be accomplished by the enactment of the bill.

Judge Fletcher opened with the assertion that the bill is sponsored by all railroads of the country, whether or not they are members of the A. A. R. He thus challenged statements to the effect that the measure is one in which only a few roads believe, adding that it is favored also by railroad labor and "some very important commercial bodies." The railroads, Judge Fletcher said, plan to offer the testimony of four traffic witnesses; and business organizations favoring the bill will appear on their own account.

### On Restricting I. C. C. Rate Powers

After next listing interests which may be expected to appear in opposition, Judge Fletcher explained that the bill proposes to re-enact the fourth section so as to eliminate the long-and-short-haul principle. It would leave in effect the provision dealing with the aggregate of intermediates. Here came Senator Wheeler's reference to I. C. C. opposition and Judge Fletcher's retort thereto, as mentioned in the foregoing. Whereupon the chairman went on to ask how many railroad men would advocate abolishing the regulatory body's rate-making authority; and Judge Fletcher thought that some "would agree to abolishing the minimum rate power." Though Senator Wheeler had "yet to find" a railroad man who favored curtailing the commission's rate powers, Judge

Fletcher insisted that a poll would indicate "quite a number" in favor of removing the minimum rate power.

In reply to the chairman's next observation that such a move would bring a competitive scramble, the witness said he had an idea that "there'd be less of that than there once was—some lessons have been learned." The colloquy closed after Senator Wheeler had next remarked that the people of Montana were afraid that the railroads haven't learned a lesson, and would "wreck intermountain territory," and Judge Fletcher replied that he wouldn't want to put anything in the record "challenging your statement as to the attitude of Montana."

The Interstate Commerce Commission, Judge Fletcher went on, has been compelled to perform the "almost impossible task" of determining what is a "reasonably compensatory" rate. Like the railroads, it has to use its best judgment in this connection because the Act is not sufficiently definite. The witness was interrupted by Senator Bone of Washington who suggested that conditions in the shipping industry are making water competition less important—ships operating in intercoastal service are being withdrawn because of the lack of profits. Judge Fletcher thought that such developments were due to business conditions, and he cited also government subsidies as an incentive to transfer ships to foreign trade.

### No Inconsistency with Ex Parte 123

Asked by Senator Wheeler if the railroad positions before the committee and in the Ex Parte 123 rate-increase case were not inconsistent, the witness saw "not the slightest inconsistency." He explained that the only reason for putting in lower rates at water-competitive points would be to improve railroad revenues, which is also the purpose of the Ex Parte 123 application.

Even under the proposed revision of the fourth section, Judge Fletcher continued, the burden of proof would remain on the railroads to justify departures from the long-and-short-haul principle. Also, the carriers would have to justify any subsequent increase in rates thus reduced on some basis other than the withdrawal of water competition. The "main purpose" of his appearance, Judge Fletcher said, was to make the point that the fourth section is but one division of section 3—the "heart of the act," which prevents discriminations and preferances. The long-and-short-haul clause covers "just one phase" of discrimination.

Senator Wheeler next suggested that complaints which brought about the tightening of the fourth section were based upon alleged discrimination against inter-mountain territory. When Judge Fletcher replied that the I. C. C. "would immediately correct" discriminatory situations under the third section, the chairman retorted that his observation was based on the experience of inter-mountain shippers—not theory; the commission, he added, did not correct such situations. Taking Seattle, Wash., and Billings, Mont., as examples, the Senator went on to ask if it were not "economically unsound on the face of it" to haul freight another 1,000 miles "over the mountains" to the former point at a lower rate than is charged to Billings. Judge Fletcher thought the chairman had overlooked "a great many important factors." He went on to explain that the water competition is present at Seattle, the advantage Seattle has over Billings is there —"not due to any act of the railroads."

### How Accidents of Rail Locations Bring Fourth-Section Difficulties

The A. A. R. vice-president next explained how the present fourth section might operate against a railroad, merely because of the accident of geographical location. He cited in this connection the Pennsylvania and the Baltimore & Ohio, pointing out how the former could make a lower rate from Philadelphia, Pa., to Pittsburgh without at the same time reducing its Philadelphia-Washington, D. C., charges. The B. & O., however, would require fourth-section relief to preserve its Philadelphia-Washington rate while reducing that between Philadelphia and Pittsburgh—this because the B. & O.'s Philadelphia-Pittsburgh line happens to pass through Washington.

Here Judge Fletcher traced briefly the evolution of the present fourth section, explaining first how the original House report in 1887 contained a rigid prohibition, which was amended in the Senate to add the "very significant" words—"under substantially similar circumstances and conditions." After "years of controversy in the courts" on the meaning of these words, they were eliminated by the 1910 amendments. Then came the Transportation Act of 1920 with its "reasonably compensatory" provision in addition.

Senator Wheeler interrupted the witness to make some observations on competition between railroads, and the number of traffic solicitors employed. When Judge Fletcher replied that "the shipper wants them around," the chairman came back with "the only reason he wants them around is to buy him champagne and a dinner once in a while." To which the witness answered that he had never seen Congress turn out a law "that didn't say in the first breath that you must preserve the principle of competition."

"But," said Senator Wheeler, "you're not preserving competition by letting a road that goes 'all around Robin Hood's barn' participate in business on the same basis as a direct route."

### Most "Big Money" Applications Denied

The chairman's next question as to the number of fourth section applications and the proportion receiving favorable action from the I. C. C. was answered by Dr. R. V. Pitt, assistant director of the I. C. C.'s Fourth Section Board, who was in the audience. Dr. Pitt said that there have been 17,000 applications since the Act was passed, and about 85 per cent have been granted. But Judge Fletcher was not content to let these statistics stand without the explanation that "the 15 per cent they've refused were the only ones that carried any money or had much importance."

Continuing his statement, the A. A. R. vice-president said that he saw no possibility of any one being hurt by enactment of the bill—"except perhaps the boat lines." And in the latter connection there is "no thought of the railroads proposing or the I. C. C. allowing rates as low as those of the water carriers." He would not agree with Senator Wheeler that regulation of water carriers (which the chairman said he had attempted to bring about) would obivate the need for long-and-short-haul clause repeal. The witness saw no way of applying the fourth section to water lines, and he reminded the Senator that the railroads are not asking for any relaxation of rate regulation. He added that it is "impossible to conceive" that the proposed legislation would result in injury to any intermediate point; and Senator Wheeler again referred to Montana shippers to whom "this is no theory—they had a taste of it, and the railroads injured every stock man in Montana."

Judge Fletcher's testimony closed after a discussion with Senator Bone on the plight of intercoastal water carriers, which, the witness said, are "almost as bad off" as the railroads. And Chairman Wheeler observed that

"all admit that the railroads are in a difficult position, and no one on this committee wants to do anything to hurt them."

### Short Lines Need Relief

President Hood of the Short Line Association opened the second day's session at which Senator Minton presided. Mr. Hood explained briefly the importance of the short lines in the country's transportation system, asserting that "the continuing availability of the service of most of these lines is if vital consequence to the citizens affected." He added that "no permanent plan is possible for the solution of the transportation problem which does not preserve rail service for substantially all communities."

Enactment of the Pettengill bill, Mr. Hood went on, "would help preserve short line railroad service—directly . . . by the restoration of certain traffic to the rails at something more than out-of-pocket costs"; indirectly, by relieving short lines "from expensive applications for fourth section relief." The latter, as to many of the Association's member lines, "will contribute more to their net income than would the net earnings on the increased traffic." The short lines lack the staff necessary to prepare such "highly technical applications" and "the rate checks and studies which must precede them." Mr. Hood continued to outline additional woes which the fourth section brings to the short lines, illustrating by a citation of requirements which must be met in an application for relief.

Passing over any technical explanation of the effect of the proposed change, Mr. Hood stated the anticipated result "in the simplest of terms." It would afford a business the opportunity "to merchandise its product—transportation—just as all unfettered businesses now do: Wherever a sale can be made, at whatever price, which includes a profit, the customer will pay; and, provided that no other customer is thereby required to pay more." As "direct benefits" which he anticipates "will accrue to the general public which uses the railroads," Mr. Hood listed: Additional railway expenditures in every state; increased business activity and higher tax collections brought on by additional traffic passing through and revenues earned in the various states; and the tendency of the added traffic to bring about a reduction of all rates.

Asked by Senator Minton why the sections of the country differ about the merits of the bill, Mr. Hood replied that the hostility of some sections arises from memories of past discriminations, and a lack of understanding of the purpose of the bill and the protection which would remain in the Act. The Indiana Senator next asked if the bill were designed to equalize conditions as between rail and water carriers; and the witness said that such was the principal effect expected. He added that the railroads are now deprived of enjoying any benefits from traffic moving to coast points.

### Restriction Has Outlived Its Usefulness

General Manager Donnell of the Tampa Traffic Association based his observations on some 27 years of experience in dealing with the long-and-short-haul clause. For a number of years after its enactment, he said, it served a useful purpose, but "it has long since outlived its usefulness." The railroads, Mr. Donnell explained, no longer enjoy a monopoly of transportation, and none of their competitors operates under any such restriction. Furthermore repeal "will deprive no one of any legislative protection now enjoyed." Also, if the shippers thought passage of the bill would put the ship lines and trucks out of business, they would not support it. Business depends on such agencies, Mr. Donnell said, adding, however, that rail transportation is also necessary to shippers; and, if it were lost, all other agencies could not provide adequate service. Furthermore the trend of abandonments together with receiverships indicate that current fears for a continuance of adequate rail service are "well grounded."

In Mr. Donnell's opinion the railway rate level, "generally speaking," is higher than it would be without the long-and-short-haul clause. By preventing the development of traffic, it tends to operate against rate reductions based on volume, he said. And the contention that indiscriminate rate cutting would follow repeal "is not warranted"—water carrier costs are lower than rail costs, and the water lines could fix rates "far below the point" where rail rates would be profitable. If the railroads were to "embark on such a stupid program" the I. C. C. would prevent it under its authority to fix minimum rates.

Asked by Senator Davis of Pennsylvania if he believed that all transport agencies should be regulated, Mr. Donnell replied in the affirmative, but he was not sure that the entire regulatory job should be given to the I. C. C. He thinks perhaps there is something to be said for making water carriers subject to the Maritime Commission. The witness explained the long-and-short-haul principle to Senator Schwartz of Wyoming by citing "an extreme example." It was of two bakeries—one mandated to charge 20 cents for a loaf of bread, and the other free to charge 10 cents. The "mildest thing" that can be said about the fourth section, he added, is that "it's unfair."

### Roads Need Rate-Increase Tonic

After a discussion with Senator Minton on benefits which repeal may be expected to bring to Florida (the witness' state) and Indiana (the Senator's constituency), Mr. Donnell told Senator Johnson of Colorado that the railroads are seeking the Ex Parte 123 increases "in very large measure" because of the existence of the long-and-short-haul clause. But he came back with an emphatic "No" to Senator Johnson's next inquiry as to whether repeal would remove the need for the rate increases. The witness explained that the railroads need the "15 per cent" boost as a tonic. While he thinks the general level of railroad rates is too high, he would not favor a reduction at this time—the railroads "must get over the hump" or else they are "going into the hands of the government." Mr. Donnell further explained his rate views to Senator Minton when he said that "as a matter of expediency rates should be raised; as a matter of principle they should be reduced." And "expediency is upon us" in Ex Parte 123.

Also, Mr. Donnell thinks that there must be some scaling down of railroad capitalization; that the carriers must do more to help themselves and that unifications must come. It is his view that railroad stockholders realize the inevitability of such adjustments.

"Then," said Senator Minton, "you'd be in favor of operating men running the railroads, rather than bankers?"

"Not entirely," the witness replied, "there are good and bad bankers."

### Some Water Carriers Now Affected Adversely

Chairman Kerr of the Southern Freight Association stated that while in this instance he spoke for the railroad members of that Association, the membership

nevertheless includes "the principal steamship lines operating along the Atlantic Coast, and three important lines operating on the Chesapeake Bay." He desired to emphasize the latter "because so many persons hold the view that railroad and steamship lines are hostile . . . whereas, as a matter of fact, the two services have worked together in Southern territory." He added that "there has never been a demand in the South by the water carriers for a rigid observance of the long-and-short-haul rules; to the contrary, they are adversely affected to a very considerable extent by the onerous requirements of the present long-and-short-haul clause."

The witness went on to explain how the South "is peculiar from a transportation standpoint" in that railroads there meet all kinds of competition—water, highway, electric transmission lines, and natural gas. Thus, whatever may have been the situation in the past, "conditions have now wholly changed and there exists no need at this time for restrictive rate formulae in order to insure the shippers the lowest possible freight charges"; legislation, such as the long-and-short-haul clause "restricts and prevents the railroads from meeting competition . . . deprives the railroads of needed revenues, and at the same time deprives the shipping public of the use of the railroad transportation system."

### Railroads' General Objections

Dealing specifically with the present long-and-short-haul rule, Mr. Kerr summarized the railroads' general objections as follows:

1. It places rates in a straight-jacket and prevents the railroads from meeting competition at competitive points, except at the price of reducing rates from, to and between intermediate points at which similar competition does not exist. While numerous orders have been issued granting relief from some phases of the requirements of the fourth section of the Act, no important or substantial relief has been granted which will enable railroads to meet effectively competition with water carriers, pipe lines or truck carriers.

2. Its demonstration and application place an undue burden on the railroads and the commission in time, effort and expense. It is impracticable to estimate the expense, but the aggregate cost has been enormous.

3. It merely states a particular kind of discrimination, and affords the shipping public no remedy not already available under other sections of the Act.

The witness continued to remind the committee that, except for its quasi-public character, "transportation, as an industry, differs little from any other business, and it is—or should be—controlled by the general laws of trade. The railroad manufactures and sells transportation just as another manufacturer sells the output of his factory. But no manufacturer would willingly yield to a law which undertook to compel him to sell a like quantity of his output to each customer at the same measure of profit, without regard of any sort to the place or to the competition with products that might be substituted for his. Manifestly, unless a manufacturer of any commodity is in a position to make a delivered price at a given destination as favorable as can be made by a competing producer, he cannot long remain in business. Furthermore, if his profit on the most highly competitive part of his business should become the measure of his profit on all of his business, he is immediately faced with the necessity of confining himself to that business which will yield him the maximum profit. However, this is substantially what the long-and-short-haul rule of the Act requires of the railroad transportation industry.

The witness went on to give specific examples of the working of the fourth section, pointing out among other things how the 1920 amendment requiring that rates thereunder be "reasonably compensatory" took from the railroads and placed upon the I. C. C. "the responsibility of distinguishing between profitable and unprofitable business." As "typical" of the difficulties of seeking relief he cited the above-mentioned case wherein the publication of routings and restrictions required the issuance of a much more voluminous tariff than would have been required to set out the rates involved. The case cited was Fourth Section Application 13918, entered August 24, 1932 (186 ICC 675), wherein the relief granted was made subject to six "complex and impractical conditions."

When the latter were read by Mr. Kerr, Senator Schwartz asked if the witness would "diagram that for us." Here came also the showing of the tariff which, as stated above, "almost sold" Senator Minton "on the virtues of the bill." By this time the adjournment hour had arrived and Mr. Kerr was permitted to file the remainder of his statement for the record. There seemed to be no need for his returning to complete the oral presentation which he had planned to make—the tariff exhibit's eloquence had stolen the show for the time being at least.

With the material which was incorporated into the record, Mr. Kerr had planned to discuss the preparation of fourth-section applications and hearings; delays of publication and loss of traffic incident thereto; making rate adjustments much broader than necessary; routing provisions in tariffs, the ample protection which would remain for the shipping public; and the need for long-and-short-haul clause repeal even though water carriers are brought under regulation.

During the course of his presentation, the witness, in response to questioning, had told Senator Johnson of Colorado that it was under the less-restrictive fourth section that the railroads were able to build up the country "from coast to coast." Present restrictions tend to prevent industry from locating at interior points, Mr. Kerr continued, adding that Colorado sugar could not move into the large consuming markets without fourth section relief. Yet the railroads "were years trying to get relief on sugar rates"; and the Colorado iron and steel industry can no longer compete at coast points. In this connection, the witness went on, the bill is favored by the Colorado sugar beet and iron and steel interests. He was unable to explain for Senator Schwartz the objections of Wyoming livestock interests; Mr. Kerr does not understand the real basis of that opposition.

### Price-Making Flexibility Must Be Restored

At the March 1 session, with Senator Minton still presiding, F. H. Plaisted, freight traffic manager of the Southern Pacific, commenced the reading of a lengthy prepared statement, the main theme of which was the necessity for restoring flexibility to the process of railroad price-making if the carriers are to meet promptly new and changing competitive conditions. Holding that "this is a pressing need of the railroads themselves and of the producers dependent upon them for marketing products," Mr. Plaisted declared that "there could be no greater contribution to this purpose than to repeal the outworn and now unnecessary long-and-short-haul clause of the Interstate Commerce Act."

Long delays in adjusting railroad rates to the needs of traffic either stop its movement or divert the business to competitors, he said. "Even where, after long investigation, some measure of relief from the rigid rule is obtained it frequently transpires that either change in

conditions or the nature of the terms imposed, renders the authorized rate ineffective in preventing the loss of traffic." Mr. Plaisted reminded the committee that the bill, which "grew out of the general dissatisfaction of both shippers and carriers with the present long-and-short-haul clause," was originally introduced in Congress through arrangements made by the National Industrial Traffic League. The measure has the backing of all the railroads, he added.

"Without changing the law's prohibition of unreasonable or undue discrimination, or circumscribing the authority of the Interstate Commerce Commission to prevent such discrimination," the witness explained, "the proponents of this bill are seeking a shortened procedure in lieu of the present slow and cumbersome process in connection with publication of rates which must be made lower for longer than for shorter distances, to meet compelling competition. The railroads desire to initiate, publish and file tariffs involving rates lower for longer than for shorter distances just as they now initiate, publish and file tariffs of all other rates; but with this marked difference—protestants alleging violations of other sections of the Act must prove their allegations, while, in cases involving rates lower for a longer than for a shorter haul, this bill specifically provides that the burden of proof shall be upon the carriers to justify such rates."

While making and elaborating upon the foregoing points Mr. Plaisted had interspersed bits of fourth-section history and quotations from I. C. C. decisions and other pronouncements on the long-and-short-haul principle. He asserted that it is neither wasteful nor inefficient to devote unused rail capacity to the public service. Nor could he see how the water lines would be destroyed unless they destroy themselves. The witness explained in the latter connection that the steamships "always have been and always will be the rate-making lines between the two seaboards—their destiny is in their own hands." As Mr. Plaisted saw the situation it was not a case of "water transportation or no water transportation" but an attempt to bring about a "fair sharing of the traffic in accordance with section 500" of the Interstate Commerce Act. And the railroads know enough about their out-of-pocket costs "to know the danger line"; the S. P. uses the out-of-pocket formula approved by the I. C. C. for handling company material, and "many times" the regulatory body "has required the railroads to publish rates that can be justified only on that basis."

### Interior Producers "Bottled"

Referring to producers located in the interior of the country, the witness said that these are now "bottled" and excluded from access to coast markets. And Western roads have failed to obtain the necessary authority in repeated attempts to check the loss of interior industry from their lines. It is not the purpose of the railroads, Mr. Plaisted said, to "crucify" the interior or any other section—the main purpose is to benefit the interior by enabling industries there to reach new markets.

Senator Bone here came forward with questions similar to those he had asked previous witnesses on the financial difficulties of the intercoastal ship lines. He said that there has been talk on the floor of the Senate to the effect that this intercoastal business is going to die—that it cannot continue if it must purchase new ships at the "outrageously high" prices quoted recently on 12 vessels which the Maritime Commission proposes to build. The witness was unable to answer until he heard what the water carrier interests had to say, but he did point out that the shipping companies, being the rate-making lines, could adjust charges as their costs increased. Senator Shipstead of Minnesota observed that the railroads, too, are faced with increasing costs; and the witness agreed, citing the Ex Parte 123 rate-increase application. He added, however, that the water lines have the advantage in this connection; they are able to increase rates without approval of a regulatory body.

### National Safety Requires Good Rail Service

Mr. Plaisted concluded his statement at the March 2 session, when he stressed the value of railroads from the standpoint of national safety and the desirability of permitting the carriers to develop so that they will be able to perform satisfactorily in such emergencies. The witness told Senator Schwartz that while I. C. C. regulation of water carriers might stabilize rates, the railroads would still need fourth-section relief. Senator Truman of Missouri pointed out that the railroads could now increase many rates which are not held by I. C. C. orders, adding that "this thing gets my goat—I can't see why it is necessary to raise rates 15 per cent and then charge less than cost to coast points." Mr. Plaisted reminded the Senator that out-of-pocket rates were "not less than cost."

Senator Bone observed that by manipulation of rate structures the railroads could "change the whole pattern of life" in any section of the country; and Mr. Plaisted cited other sections of the Act which give the I. C. C. strict control over all rate proposals. The witness went on to say that he thought the water lines would be better off with a stabilized competition, but he would not agree with Mr. Bone that the "whole thing contemplates raising water rates." He does think, however, that water rates ought to be stabilized on a basis which will sustain the service.

Senator Truman here interjected his view that if one agency of transportation is to be regulated, all should be regulated on the same basis. Again Mr. Plaisted said that such a set-up would help, but passage of the bill would nevertheless remain desirable. He went on to explain that the railroads would probably not be able to make rates which would take freight from the Atlantic seaboard; but they could get some from interior points.

Senator Bone thought the picture "would be happier" without the current application for rate increases; and the witness replied that the railroads would be happier if they had not been forced to make that application. He hopes that the I. C. C. "meant what it said" in a recent report about the desirability of permitting railroads to accumulate in prosperous times reserves which would carry them through periods of depression. Senator Truman agreed "with that thoroughly." Senator Bone asked why the railroads have not pursued a policy of retiring debts, and Mr. Truman asked if the Washingtonian would want to put "J. P. Morgan and Kuhn, Loeb out of business." Senator Minton thought the question was one for "Senator Truman's" investigation of railway finances, but Mr. Plaisted nevertheless answered that he is a traffic man who tries "to get the money and hopes they'll make good use of it after that."

Here the railroad presentation was again interrupted to accommodate E. H. Berg, traffic director of the St. Paul Association of Commerce, who spoke also for other St. Paul and Minnesota interests. Mr. Berg declared that the present law works unjust hardship on industries of St. Paul and Minnesota, especially in connection with their efforts to meet competition in Pacific coast markets. The witness cited specific examples in this connection, explaining that all the interests he represented are asking is the opportunity to compete on the coast on "something near" an equal basis.

# Short Trains Increase Hazards*

## Fatalities affected by the number of trains operated are many times more than those attributable to internal train shocks

**By L. K. Sillcox**

First Vice-President, New York Air Brake Company

THE bill, sponsored by railway labor, introduced in the Senate by Senator McCarran of Nevada, and favorably voted by the Senate of the Seventy-fifth Congress as Senate Bill S. 69, would limit the size of freight trains to no more than 70 cars. There are two results in railway operation under the terms of the measure to be considered—one obvious, one claimed by its proponents. It would, by increasing the number of trains required to perform a given amount of transportation service, add to the number of train employees engaged. Labor argues that the bill merits and has received the support of the railway train service brotherhoods since it would reduce the number of accidents chargeable to train operation. It is offered as a safety measure with the claim that compliance with its terms need not involve the railways in any considerable added operating expense.

Figures have been made public which illustrate the economy of the full tonnage train. Railway estimates claim additional expense, resulting from the enactment of such legislation, in excess of 100 million dollars per year, which is presumably most conservative. There is no foundation for the view that train size limitation would result in no serious penalty in cost to the railways. On the other hand, neither the effect upon railway labor, nor any additional cost burden which the act might impose, should be permitted to obstruct its passage if it can be shown that the result would be fewer persons killed or injured each year.

### Accident Causes Fall in Four Classes

The railways are being asked and measures have been taken to make them comply with a plan which would expose a greater number of men to the ordinary hazard of railway occupation without any increase in the transportation service performed. To what end would this be done in the name of safety? To relieve men of the necessity for riding on locomotives or in cabin cars attached to long trains and thus to avoid whatever danger may be associated therewith. A vastly greater number of railway employees are incapacitated, a few permanently, many more temporarily, due to the type of casual accident which finds its parallel in every industry and occupation. Carelessness and failure to protect oneself alertly against mishap take their common toll. Men are injured boarding and alighting from trains, slipping and falling on cars or on the ground, and throwing switches at passing sidings. Cinders lodging in employees' eyes account for many disability claims. Such accidents increase in number directly with the number of employees engaged in the movement of a fixed tonnage. Boiler explosions, the accident type claiming the highest mortality per accident, accidents associated with the servicing of locomotives, oiling, cleaning fires, replenishing tender fuel and water supply, etc., all types of accidents resulting from the presence of men on and around locomotives, will increase proportionately with any increase in the number of locomotives engaged in a specified service. The accident record in all these divisions will be adversely affected with the introduction of any measure which will have for its effect, the running of more trains than now operate to produce a given amount of transportation.

There is a second type of accident which is unaffected by the size of a train or the manner in which it is handled. It is generally contingent upon the movement of a car or the performance of an essential service. For example, if a rail should break beneath a train, a derailment is likely to occur and it matters not how many cars make up the train. If a brakeman, setting the hand brake on a car at an industrial siding, fails to use the hand hold provided or falls from another cause, responsibility for the accident cannot be related to any characteristic of the train from which the offending car was received. The consequences of some such accidents may bear some relation to train consist but this is difficult to assign. A review of a number of accident reports indicates, however, the apparent greater security of the members of a train crew, in the event of a derailment of cars within a train, the farther removed their caboose may be from the point in the train at which derailment occurs.

The spokesmen for railway labor, in defense of their position in attempting to outlaw trains of more than 70 cars, focus public attention upon a third and a fourth class of railway accident—the third, that which is caused by the interaction of loosely coupled cars—shock accidents arising from speed differences between cars in the same train. Existing designs of draft gear and power brake equipment, together with the required maintenance of both, assist in the prevention of accidents of this type. The fourth is an accident caused by misinterpretation of visual signals transmitted for communication of messages between the front and rear of trains.

### 1936 Train-Service Accidents Classified

Train-service accidents, occurring in the conduct of main- and branch-line railway freight operations and involving injuries to approximately 10,000 persons, were reported to the Interstate Commerce Commission by the railways of the United States during the year, 1936. Of these, less than 4,000 were railway employees on duty. Nearly 3,000 were trespassers on railway property and as many more were non-trespassers, a group consisting mostly of occupants of automobiles involved in collision with trains at grade crossings.

Accidents of the first group, those affected by the number of trains operated, accounted for more than

* A portion of an address delivered before the Graduate School of Business Administration, Harvard University, February 16, 1938.

2,000 deaths and 4,500 injuries during 1936. Of those killed, more than 1,200 were trespassers, persons who had no legitimate right to be on trains or railway property. Approximately 700 were occupants of vehicles or pedestrians who, through failure to exercise proper caution, struck or were struck by trains. Nearly 150 railway employees were killed under conditions of hazard which would increase were a greater number of trains to be operated.

What now of the second arbitrary accident classification, that which embraces the type which, by its very nature, is entirely independent of the manner in which road freight movements are carried out? More than 700 men lost their lives in 1936 in this type of disaster. Again, trespassers on railway property suffered the greatest number of casualties. More than 600 such individuals lost their lives. Grade-crossing and similar accidents claimed the lives of four non-trespassers. Eighty railway employees were killed.

**Analysis of Deaths Caused by Train-Service Accidents in 1936**

| Accident type | Accident class | Trespassers | Non-trespassers | Employees | Total |
|---|---|---|---|---|---|
| Affected by number of trains operated | 1 | 1,273 | 696 | 138 | 2,107 |
| The "independent" group. | 2 | 620 | 4 | 80 | 704 |
| Attributable to internal train shock | 3 | 20 | 0 | 12 | 32 |
| Misinterpretation of signals | 4 | 0 | 0 | 0 | 0 |
| Total | | 1,913 | 700 | 230 | 2,843 |

Turn now to the consideration of shock accidents. The deaths of 20 trespassers can be assigned to this cause. No non-trespasser lost his life and but 12 railway employees were killed.

Not a single accident, claiming a life or causing an injury, was reported as due to misinterpretation of signals because of distances involved.

Can the spectre of fear of fatal accident involving one man be advanced as a reasonable motive for equally endangering the lives of 66 others? Or, to restrict our comparison to consideration of the railway employees who would invite this condition, can the fear of death of one man justify exposing 12 others, similarly employed, to the same fate? Moreover it is to be noted that trains in excess of 70 cars in length were not responsible for all, nor for the majority, of the fatal accidents resulting in shock arising from train handling. In fact, but six of the 32 trains involved in fatal shock accidents, consisted of more than 70 cars.

## Relation of Length of Train to Fatalities

Accidents which occur to trespassers, a class consisting, for the most part, of tramps and hoboes, should have little influence upon measures for improving railway safety. Recourse can only be had to discipline in controlling these men and it is a matter of social interest wherein the state might quite properly cooperate. Considering the two classifications, non-trespassers and employees, the table shows fatal injuries to 700 non-trespassers and 230 employees. Practically all non-trespassers (all but four) met their death by reason of conditions which any increase in the number of trains would aggravate. An increase of 60,000,000 train miles operated in 1936 to handle the same traffic, had no trains consisting of more than 70 cars been permitted, would have resulted in an increase of 38 fatalities of occupants of passenger automobiles at railway grade crossings, based upon analysis of 1936 figures.

How futile it would be to invite such a condition, in order that the long train might be eliminated. Six men, two of them railway trainmen, lost their lives on long trains due to shock accidents in 1936 and many more were killed due to similar causes when employed in the handling of short trains. It is true that any condition resulting in the death of six men is a matter of concern. Such occurrences must be prevented if it is in any way possible. Surely the solution does not reside in endangering the lives of many times six others.

According to records of the Interstate Commerce Commission, 146 automobiles were struck at grade crossings, 64 persons were killed or permanently injured, and 169 were disabled by freight trains of less than 70 cars, every 100 million miles so operated in 1936. For every 100 million train miles in trains of 71 cars or more, but 45 automobiles were struck at grade crossings, 20 persons were killed or permanently injured, and 42 were disabled. Irrespective of the conditions which may be cited to account for the grade-crossing accident record of the short train, it cannot be shown that this type of accident will not respond unfavorably to any change in practice which will increase train miles. Should it be argued that the branch-line crossings are not adequately protected, offering greater hazard, and crossed by short trains only, one need only point to the main-line accidents of 1936. Branch line mileage is unknown but, after eliminating all branch-line accidents but retaining branch-line mileage the comparative accident records reveal:

| | No. of cars in trains | |
|---|---|---|
| | 70 or less | 71 or more |
| Main-line grade crossing accidents per million train miles | 99 | 45 |
| Persons killed or permanently injured | 50 | 20 |
| Persons injured (not permanently) | 112 | 42 |

## Roads Have Two Motives for Reducing Hazards

Railways are not unmindful of any form of hazard to which their employees are exposed. Should one choose to discredit a sincere interest in the employee, reduction in the cost of accidents still remains a sufficient objective in itself to warrant diligent study of means whereby safety of employees may be improved. The long train has been fully investigated from this viewpoint. Its weaknesses have been discovered and although the number of men whose injuries may be traced to its operation is relatively small—smaller than could be expected were the same number of cars handled in any other manner—still the railways have voluntarily adopted plans for the control of these.

Collisions between coupled cars, arising from the independent movement of those cars within the limits of their couplings, increases with the amount of free movement allowed and the difference in the rate at which the individual cars are accelerated or retarded. The railways are appreciative of the condition and have initiated effective means for the control of the contributing factors. Rigid minimum standards for draft-gear capacity have been adopted and all new gears applied must conform with these requirements. The effect of the state of maintenance has been recognized and steps taken to insure that the qualities of the accepted draft gear will not be permitted to deteriorate through use to the extent that it will fail to protect adequately equipment and lading. Through voluntary joint action of all railways and owners whose cars move freely in interchange over connecting railways, and in co-operation with the manufacturers, improvements have been currently effected in air-brake design whereby characteristics are provided to relieve effectively the differences in net retarding forces obtained at the various stations throughout the modern train whatever its size may be within present limits.

Eliminating safety in railway operations as a just rea-

son for burdening the carriers with an enforced change in their methods, and acknowledging a harmful increase in railway costs, the most sweeping search discloses no benefit arising from adoption of the measure other than the temporary and uncertain patronage accruing to the members of that relatively small group of employees who would be advanced in their security of position by elevation in the seniority scale and those few who would be added to railway payrolls. The cost in human lives and in expense which is ultimately borne by the public is too great to justify serious consideration of such a plan. Yet certain representatives of the public are always to be found who, seeking favor of the organized few, are willing to sacrifice the rights of the unorganized many, if only selfish motives can be clothed in arguments and phrases which conceal the genuine and usually selfish purpose.

### Public Interest Poorly Served by Further Unproductive Costs

Train-limit legislation would force another unproductive element of cost into the conduct of a business from which genuine prosperity was withheld before the catastrophic but unfortunate economic crisis of recent years engulfed all business. The margin between railway gross revenue and operating cost is already too narrow and it cannot, without peril, be further restricted. Maintenance costs in both road and equipment cannot suffer further reduction. On the contrary there exists at this moment a drastic need for more liberal expenditures to compensate for those which have been too long deferred in anticipation of less trying economic circumstances in prospect. Any single division of the remaining accounts represents too small a portion of the whole to afford substantial relief and transportation costs, among all others, must be examined, effecting economies at a time when plans are being laid to enforce the further pyramiding of expenditures in this account.

A subsidy is defined as a grant of financial aid by government to a private enterprise engaged in public service. More intimately, a subsidy is an element of expense imposed horizontally upon the citizens to support a part of the cost involved in the conduct of a public service. If the private enterprise is an agency for transportation, the public indirectly pays a portion of its own shipping costs. If rates are raised, the effect is identical except that the selective awarding of subsidies to competitive carriers obscures actual transport values. Outright subsidies to railways would be viewed with alarm. Government is already too liberal with the funds entrusted to it. Subsidies to competitive enterprises or governmental intervention in matters affecting costs—both must lead either to subsidies to railways or to the only visible alternative—commensurate increases in railway rates. The result would be the same, whichever course were pursued.

It would be preferable if all subsidies were withdrawn and rates adjusted to meet all costs. The economic suitability of each agency would be promptly disclosed, but government has revealed no inclination to adopt such a plan. It must be thoroughly realized, however, that the citizens of our nation should not, by exercise of their right of suffrage, directly or through their representatives, with reckless disregard for the consequences, increase the operating costs of a utility devoted to their service, unless they as individuals are, at the same time, prepared to sustain the burdens they have imposed.

A bill which would limit the length of freight trains threatens the safety of the individual—not the trainman alone but all who must cross railway properties at grade or ride in trains. It would interfere with the standards of service already attained and disrupt the plan of continued improvement now in effect. It would destroy property values while affording no compensation. Impartially viewed, it is impossible to discover a single element of merit to support it.

The attitude of railway labor toward management is the most disheartening influence with which the administrations have to contend. So much could be accomplished for their mutual benefit if labor were willing to align its fortunes with the interests of those who own the properties, sacrificing during difficult periods and sharing alike in the rewards of a prosperity to which it had contributed. The corrosive attack upon dwindling profits and feasting upon the spoils of an organized invasion will be met with its own misfortune. Men, methods and machines are still imperfect and these very imperfections give employment to many. If labor chooses to pursue the course of coercion it has laid down, and if the public is disposed to support labor in its economically unjustifiable demands, then both must be prepared to accept the inevitable repercussions which such a program must excite.

# Railroads Mobilize Facts About Railway Buying

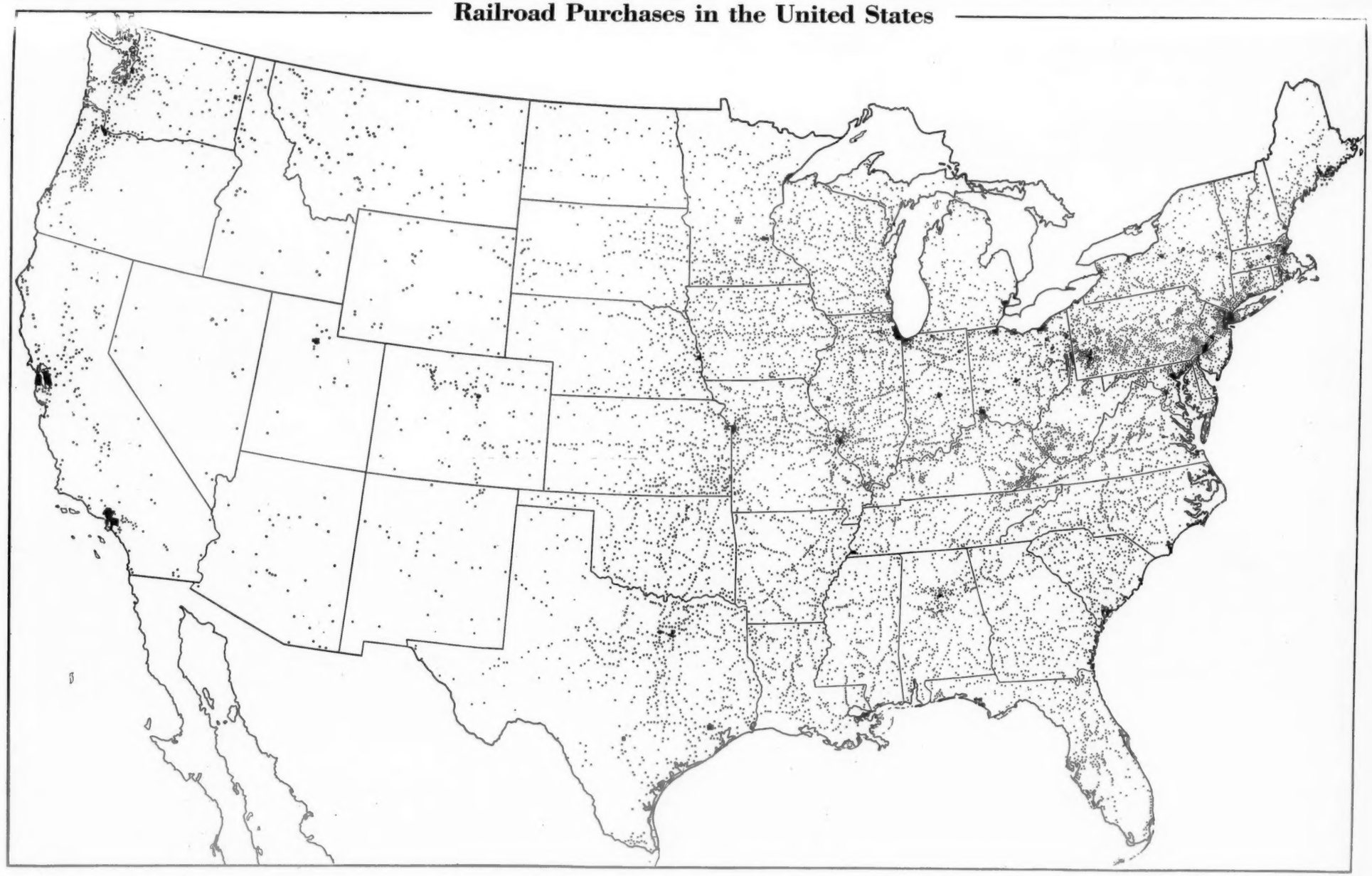
IN a series of maps made public early this year, the Association of American Railroads announced the results of a survey made to determine the number of towns and cities participating in railway buying. This survey was launched last November and was based upon disclosures made by the *Railway Age* in 1932* and again in 1934† when this paper gathered and published statistics and maps showing for the first time in concrete form the wide distribution of railway purchases. While making no effort to determine the amount of money spent in each town, the A. A. R. survey was broadened to develop a more complete list of the cities than was undertaken in this paper's previous investigations and to obtain a more complete dissemination of the information. For the purpose of the summary, all railroads in the association were asked to report the names of all the towns and cities in which they made purchases in 1937, following which maps of the United States and of each state were prepared showing the location of the towns in each state and county respectively.

The maps are reproductions of exhibits recently presented by J. J. Pelley, president of the A. A. R., to a special Senate committee investigating unemployment and relief, and show that in 1937 the railroads made purchases in 12,174 cities and towns located in 2,637 of the 3,072 counties in the entire United States. There were only 435 counties in which no direct purchases appear to have been made. The count includes cities and towns supplying heat, light, electric power, water and other services, as well as materials and supplies, and communities participating in payrolls and taxes, or towns in which purchases were made by railway employees.

During 1937, the survey shows, the railroads made purchases in 342 cities located in all but 3 of the 67 counties of Alabama, and in 321 towns located in all but 2 of the 75 counties in Arkansas. In California, the purchases were made in 220 cities located in 47 of the 58 counties in that state. In the same year, purchases were made in 323 cities in all but 3 of the 67 counties of

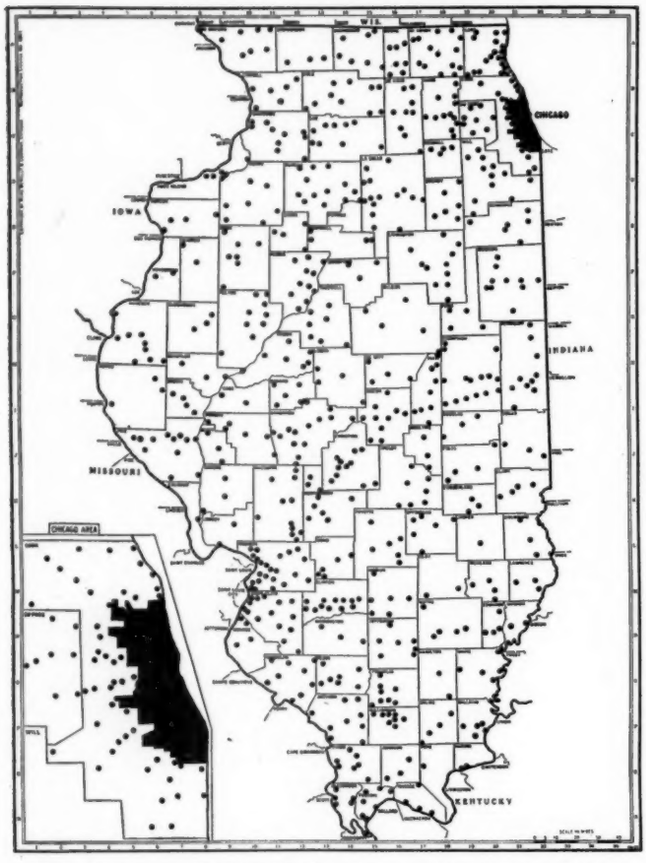
* December 3, 1932. † December 1, 1934.

## Railroad Purchases in the United States



An Exhibit Prepared by the Association of American Railroads and Presented to the Special Senate Committee on Unemployment and Relief. The Black Dots Show the Location of Cities and Towns in which One or More Railroads Made Purchases in 1937. There were 12,174 Towns Located in 2,637 of the 3,072 Counties in the United States

## Railroad Purchases in Illinois




*This map is one of a set of state maps recently presented to the special Senate committee investigating unemployment and relief by J. J. Pelley, President, Association of American Railroads, Washington, D. C. Each spot on this map indicates a city or town where one or more railroads purchase materials and supplies. In Illinois the railroads purchased materials and supplies in 720 cities and towns located in 101 counties of the total of 102 counties in the state.*

**One of the State Maps, Reduced, Showing the Counties and Towns in Which the Railroads Made Purchases in 1937**

Florida, in 330 cities in 128 counties in Georgia, in 720 cities in all but 1 of the 102 counties in Illinois, in 366 cities located in all but 3 of the 92 counties in Indiana, in 383 cities and towns in all but 3 of the 99 counties in Iowa, and in 286 cities in 85 counties in Kansas. The count showed 377 cities in Kentucky, 266 in Louisiana, 117 in Maine, 153 in Massachusetts, 248 in Michigan, 291 in Minnesota and 471 in Missouri. The purchases were made in every county in New Jersey, New Hampshire, Pennsylvania, and Rhode Island; and there were no less than 1,074 cities and towns in Pennsylvania which participated in the railroad buying last year. The number of cities and counties of each state in which the railroads made purchases last year are shown in a table.

While neither the names of towns are given nor the expenditures made in each town, the published information presents the most comprehensive summary of its kind which has been prepared, and graphically portrays the extent to which the railroads contribute to the life of the nation by their purchases.

In testifying before the Senate committee, Mr. Pelley pointed out that railway purchases of materials, supplies and fuel (exclusive of electric light, power and miscellaneous services) averaged $1,184,000,000 in 1929 and 1930, and that in the five years from 1931 to 1935, this yearly average dropped to $559,819,800. The purchases increased to $803,421,000 in 1936 and to approximately $900,000,000 in 1937 in spite of the sharp decline in traffic and revenues, especially in the fourth quarter of 1937, that resulted in a drastic reduction in buying.

Mr. Pelley testified that increased revenues and a return of normal traffic would bring about a resumption of railroad buying in large volume which, in turn, would stimulate industrial activity throughout the nation and the re-employment of thousands of workers. To build one freight car, he said, requires materials from 31 different states and provides 1,987 man-hours of employment—approximately a year's work for one man, while the building of one locomotive gives 50 men full-time work for one year and requires materials from more than 30 states.

**Towns and Counties In Which Railroads Made Purchases In 1937**

| State | No. of cities in which purchases were made | Total counties in the state | No. of counties in which purchases were made |
|---|---|---|---|
| Alabama | 342 | 67 | 64 |
| Arizona | 33 | 14 | 13 |
| Arkansas | 321 | 75 | 73 |
| California | 220 | 58 | 47 |
| Colorado | 98 | 63 | 43 |
| Connecticut | 95 | 8 | 8 |
| Delaware | 34 | 3 | 3 |
| Florida | 323 | 67 | 64 |
| Georgia | 330 | 159 | 128 |
| Idaho | 30 | 44 | 19 |
| Illinois | 720 | 102 | 101 |
| Indiana | 366 | 92 | 89 |
| Iowa | 383 | 99 | 96 |
| Kansas | 286 | 105 | 85 |
| Kentucky | 377 | 120 | 102 |
| Louisiana | 266 | 64 | 57 |
| Maine | 117 | 16 | 16 |
| Maryland | 146 | 24 | 24 |
| Massachusetts | 153 | 14 | 12 |
| Michigan | 248 | 83 | 69 |
| Minnesota | 291 | 87 | 81 |
| Mississippi | 247 | 82 | 74 |
| Missouri | 471 | 115 | 105 |
| Montana | 93 | 56 | 43 |
| Nebraska | 172 | 93 | 69 |
| Nevada | 13 | 17 | 7 |
| New Hampshire | 40 | 10 | 10 |
| New Jersey | 238 | 21 | 21 |
| New Mexico | 37 | 31 | 20 |
| New York | 488 | 62 | 61 |
| North Carolina | 345 | 100 | 88 |
| North Dakota | 47 | 53 | 31 |
| Ohio | 637 | 88 | 87 |
| Oklahoma | 293 | 77 | 74 |
| Oregon | 150 | 36 | 25 |
| Pennsylvania | 1,074 | 67 | 67 |
| Rhode Island | 22 | 5 | 5 |
| South Carolina | 242 | 46 | 45 |
| South Dakota | 122 | 69 | 52 |
| Tennessee | 300 | 95 | 86 |
| Texas | 603 | 254 | 190 |
| Utah | 15 | 29 | 8 |
| Vermont | 53 | 14 | 13 |
| Virginia | 413 | 100 | 86 |
| Washington | 157 | 39 | 36 |
| West Virginia | 261 | 55 | 50 |
| Wisconsin | 420 | 71 | 70 |
| Wyoming | 42 | 23 | 20 |
| Total | 12,174 | 3,072 | 2,637 |

* * *

Photo by C. Parker

**B. & M. Boston (Mass.)—Portsmouth (N. H.) Train Nearing Lynn, Mass.**

# Communications . . .

*The Railway Age cannot publish letters from readers who do not supply their names and addresses. Names of correspondents are not published, or disclosed even upon inquiry, unless the correspondent consents. But they must be given us as an evidence of good faith.*

## Eliminate Bondholders

NEW YORK

TO THE EDITOR:

Regarding your editorial in the *Railway Age* of January 29 on stockholders, there has been an absurd idea for many years that bondholders are the real owners of property. It is time to eliminate the bondholder entirely. He has no part in or responsibility for the management and is a continual threat to the management and owners.

Either bonds should be reduced every year until finally gone, or bondholders should be forced to manage property, eliminating stockholders completely. This double investment is a heavy drain on commerce, wages and prices. Bonds are universally wrongly considered an investment when they are really nothing but a loan.

It has been said recently that stockholders should have first consideration over everything—for without the stockholders there would be neither bondholders nor employees.

WILLIAM A. DUREN.

## Urges Managements to Organize Stockholders

TO THE EDITOR:

I wish to thank you for your editorial in the *Railway Age* of January 29 in behalf of the "Forgotten Man," a most appropriate term to apply to the railroad stockholder.

Your idea that the stockholders might do something for themselves in opposing some of the legislation like the proposed bill to limit a freight train to 70 cars, for the real purpose of forcing the railroads to employ more men, is a constructive one. Why do not the railroad executives avail themselves of that help by informing the stockholders what the stockholders should do in any such individual case? More is needed than the advertisements by the Association of American Railroads appearing from time to time in the periodicals. Although the stockholders in many sections of the country—in New England for instance—are pretty well wiped out, it would seem as if the railroad executives might try to salvage something for the investors.

Your criticism and opposition to certain government regulation of railroads is certainly not a help to railroad stockholders in my opinion. Senator Truman recently proposed legislation to do away with some abuses in railroad reorganizations such as excessive counsel fees, excessive bankers commissions, etc. It would seem as if you should support such a measure to stop such looting as has taken place in some railroad receiverships. Your comment was "Truman's blast." I should like to ask why should not the Interstate Commerce Commission or some governmental labor board fix railway wages in case of a controversy. Do you favor the present method, which is for the brotherhood chiefs, armed with a strike vote authorizing them to call a strike if they wish, to meet the railroad executives to "negotiate" a wage increase? How do the stockholders fare and how will they fare when the brotherhood chiefs set the wages as they virtually will under such conditions? What alternative is there but the compulsory fixing of wages by a government commission representing shippers, railroad investors, labor, and the whole public if you wish any justice?

The recent increase of wages was indefensible. The executives did not even carry the matter to arbitration, as they might have done under the law. They granted an increase of something like $135,000,000, I believe, a future yearly charge, a part of it to train service employees who are on the average the highest paid employees in industry, if I am correctly informed.

Unfortunately I know of some railroads in New England whose stock some years ago was over $100 a share and is now between $2 and $8 a share. Nevertheless the executives of these railroads went in for this increase of wages at a cost of hundreds of thousands of dollars. How soon the brotherhood chiefs will be back for more no one now knows. Why will you not advocate some compulsory form of settlement that at least would give the stockholders, the bondholders, the shippers and the public more protection than they have now?

A NEW ENGLAND STOCKHOLDER.

[In characterizing Senator Truman's remarks as a "blast," we were expressing no derogatory judgment; we just wanted our readers to know that his criticisms were not uttered in a cautious whisper. Our correspondent has, we think, "got something there" in his contention that the railroads are inadequately safeguarded in "negotiations" with labor leaders armed with strike votes.—EDITOR.]

## First Two-Section Streamline Train Operated in 1935

CHICAGO.

TO THE EDITOR:

I have read with much interest an article which appeared in the *Railway Age* of January 8, entitled "Streamliner Operated in Two Sections." The operation of a streamline train in two sections from San Francisco to Chicago is, indeed, an achievement in railroading but, without any desire to detract from the efficient and co-operative effort which made the San Francisco-Chicago operation possible, it appears from the statement, "For the first time in history of railroading a streamlined train was operated in two sections," that the *Railway Age* had not been informed of previous similar operations.

During the Christmas season of 1935 the original three-car streamline Zephyr trains, in alternate round-trip service between Chicago and the Twin Cities, were run as first and second sections on a round-trip basis. Schedules in the opposite directions were fulfilled by steam trains.

Prior to the Christmas season of 1936 two seven-car streamline Zephyr trains replaced the small trains in service between Chicago and the Twin Cities. To handle the traffic during Christmas week, one of the original three-car Zephyrs operated as a section of one of the seven-car trains. The distance between Chicago and St. Paul is 431 miles, and is traversed by streamline trains in six and one-half hours.

On several occasions during the summer of 1937 the Burlington Chicago-Denver streamline service operated in two sections the entire distance of 1,034 mi. on a 16-hour schedule. The first section consisted of the regular 12-car train, two stainless-steel power units and ten trailing cars, while the second section consisted of the three-car streamline train which inaugurated streamline service between Denver and Chicago.

From June to September, 1937, a second section of the Burlington Chicago-Denver Zephyr was operated regularly between Burlington, Ia., and Chicago, a distance of 206 miles. Further, on several occasions during 1937 the Ozark State Zephyr operated in two streamline sections between St. Louis and Kansas City, Mo., a distance of 279 miles.

In all instances, the operation was successfully achieved on instructions providing ten-minute spacing between first and second sections. Second sections of streamline operation were brought about by the demand for greater capacity. In each instance of second-section operation between Chicago and the Twin Cities and between Chicago and Denver in 1936 and 1937, approximately 300 passengers arrived at the terminus of the run.

E. H. PIPER,
Assistant to General Manager,
Chicago, Burlington & Quincy.

# NEWS

## January's N. O. I. Down $31.9 Million

### $6,919,879 against last year's $38,889,878—Operating deficit in West

Class I railroads in January had a net railway operating income of $6,919,879, which was at the annual rate of return of 0.49 per cent on their property investment, according to the Bureau of Railway Economics of the Association of American Railroads. In January, 1937, their net railway operating income was $38,889,878 or 2.73 per cent, and in the same month of 1930 it was $54,645,698 or 3.81 per cent.

**CLASS I RAILROADS — UNITED STATES**

*Month of January*

| | 1938 | 1937 | 1930 |
|---|---|---|---|
| Total operating revenues | $279,258,713 | $331,672,343 | $445,920,950 |
| Total operating expenses | 232,710,290 | 253,621,533 | 352,338,745 |
| Taxes | 28,813,189 | 28,052,582 | 28,939,753 |
| Net railway operating income | 6,919,879 | 38,889,878 | 54,645,698 |
| Operating ratio—per cent | 83.33 | 76.47 | 79.01 |
| Rate of return on property investment—per cent | 0.49 | 2.73 | 3.81 |

Gross operating revenues for January totaled $279,258,713 compared with $331,672,343 for January, 1937, and $445,920,950 for January, 1930, a decrease of 15.8 per cent in 1938 under 1937, and 37.4 per cent below 1930. Operating expenses amounted to $232,710,290 compared with $253,621,533 for January, 1937, and $352,338,745 for the same month in 1930—8.2 per cent less than the former, and 34 per cent below 1930.

Class I roads in January paid $28,813,189 in taxes compared with $28,052,582 in the same month in 1937, and $28,939,753 in 1930. Sixty-five Class I roads failed to earn expenses and taxes in January of which 25 were in the Eastern district, 11 in the Southern district and 29 in the Western district.

In the Eastern district the January net was $6,562,365, or 0.96 per cent; for January, 1937, it was $25,686,754 or 3.76 per cent, while in 1930 it was $32,939,155 or 4.92 per cent. Gross in the Eastern district for January totaled $135,347,652, a decrease of 19.9 per cent compared with 1937, and a decrease of 40.4 per cent compared with 1930; operating expenses totaled $109,820,162 a decrease of 11.6 per cent below the same month in 1937 and a decrease of 37.6 per cent under 1930.

Class I roads in the Southern district for January had a net railway operating income of $2,894,839, or 1.20 per cent; for the same month in 1937, their net amounted to $4,892,490, or 2.03 per cent; and for the same month in 1930 it was $7,576,945 or 3.00 per cent. January gross in the Southern district amounted to $39,269,045, a decrease of 7.7 per cent compared with January, 1937, and 34.0 per cent under 1930. Operating expenses totaled $31,675,002, a decrease of 3.5 per cent below 1937, and 33.0 per cent under 1930.

Class I roads in the Western district did not earn sufficient revenue in January to meet their operating expenses and taxes. Their net railway operating deficit in that month was $2,537,325. For the same month in 1937, they had a net railway operating income of $8,310,634, or 1.66 per cent, and in 1930 it was $14,129,598 or 2.76 per cent. Gross in the Western district for January amounted to $104,642,016, a decrease of 13 per cent below the same month in 1937, and a decrease of 34.3 per cent under 1930; operating expenses totaled $91,215,126, a decrease of 5.6 per cent compared with 1937, and a decrease of 29.3 per cent under 1930.

### Suggests That N. Y. W. & B. Employees Work Free Until Sale

The idea that former employees of the now defunct New York, Westchester & Boston carry on their jobs without compensation and the line be operated thereby during foreclosure proceedings in the hope that when the road is sold its new basis of operation will bring adequate returns to reimburse the employees for such services was discussed this week at a meeting of employee representatives with city officials of New Rochelle, N. Y., a community along the line. Broached by W. L. Moran, assistant corporation counsel of New Rochelle, the suggestion will be considered by representatives of the 250-300 former employees, who have found it "hard sledding" since cessation of operation of the road on December 31, 1937, and it is expected that some conclusion may be reached by them next week. Meanwhile, the bondholders' group have been persuaded to keep intact the equipment owned by the road so that "stop-gap" service can be established on short notice. Federal Judge Knox, in charge of bankruptcy proceedings, has already issued a foreclosure order.

## Retirement Board Got "Bad Breaks"

### Latimer explains its big job of getting over the initial "hump"

Difficulties encountered by the Railroad Retirement Board in launching the pension plan for railway employees are discussed by Murray W. Latimer, chairman of the Board, in a recent letter to Representative John J. Cochran of Missouri. Mr. Cochran inserted the letter in the Appendix to the March 1 Congressional Record for the information of other members of Congress who, like himself, may have been asked "to expedite applications pending before the Railroad Retirement Board."

In the letter, which is a follow-through on conversations between Mr. Cochran and Mr. Latimer, the Retirement Board chairman asserts his belief that the Board's "record is a good one." And, although "the work has not been perfect, we are constantly striving to improve," and "we are confident that, given a reasonable opportunity, we shall succeed."

Mr. Latimer opened with a brief account of events and litigation leading up to the enactment of the retirement plan, pointing out that "when the Retirement Board began to function in full for the first time it was faced with an accumulation of claims under the 1935 act covering retirements which would normally occur over two whole years." In addition there were the cases of persons who had been in an employment relationship to a carrier on August 29, 1935, and the 48,000 pensioners under the railroads' voluntary plans.

Thus the 140,000 claims before the Board in the fiscal year beginning July 1, 1937, represented "approximately 10 times the number of persons who will attain the age of 65 in any single year in the future, and it is almost three times as many claims as the estimated number which were expected to be handled when the budget for the fiscal year 1938 was made up. The Board therefore entered upon the current fiscal year "under these circumstances, which were beyond the power of anyone to anticipate or control." Its staff "was far too small to handle the peak load," and "it seemed impractical," for several reasons which Mr. Latimer lists, "to increase the staff to a point where it would be able to handle promptly a load 10 times normal."

In the face of such circumstances the Board adopted "what was frankly a com-

(*Continued on page 430*)

# Motor Act Changes Asked by the I.C.C.

## Would expedite procedures and clarify provisions, says report

The Interstate Commerce Commission on March 2 transmitted to Congress a report, recommending Motor Carrier Act amendments designed chiefly to enable the regulatory body to carry on its work in that field "more expeditiously and effectively." Included also are a few other recommended changes "for the purpose of clarifying certain provisions of the act, but only such as we believe should be noncontroversial." This is the first of the two supplementary reports which the commission's latest annual report (reviewed in the *Railway Age* of January 8) said would be forthcoming. The other will outline the commission's views with respect to the regulation of freight forwarders.

The present report, signed by Chairman Walter M. W. Splawn, is made in response to the commission's duty under section 204(a) (7) of the Motor Carrier Act which requires the regulatory body to make whatever recommendations it deems necessary as to additional motor carrier legislation. Recommendations are made with respect to temporary grants of authority, unification of carriers, suspension of operating rights, opportunity for hearing, recommended orders and other miscellaneous matters. The draft of a bill designed to effectuate the proposed amendments is printed in an appendix to the report.

The report, which says that the commission deems the proposed changes "to be immediately necessary," goes on to tell how the administration of the Motor Carrier Act "has proved to be a most onerous task, particularly because of the vast number of carriers and brokers subject to the act." Experience has shown the need for making procedure "as simple and informal as possible" and for expedited action. From the outset the commission has been "swamped with business and unable to handle much of it with the dispatch which good administration requires. Many of the sections of our Bureau of Motor Carriers are badly congested, with an inflow of work greater than the output."

The report lists three ways of improving this situation, "each of which is necessary." They are: A larger appropriation, the need for which "has been recognized by the Bureau of the Budget and the President" whose recommendations the commission hopes will be followed in the enactment of the pending appropriation bill; improvements in the procedure now legally possible, many of which have been made while others are contemplated; and the present recommendations "to make possible further improvements in procedure."

In connection with temporary grants of authority the report points out how the present act requires an operator to procure a certificate or permit before a new operation can be undertaken, there being no provision for a speedy grant of temporary rights to meet an emergency situation. The commission thinks it should have power in the latter connection because cases arise "where urgent need for interstate motor carrier service suddenly develops." It is recognized that care would be necessary "to protect the legitimate interests of other carriers, and that the power could be abused." However the commission believes itself "capable of using the power with proper discretion, and in any event the authority granted would be strictly limited in time by the terms of the proposed amendment."

The commission would amend section 213, covering the procedure for unification of motor carriers, so as to leave the matter of a hearing within its discretion. It points out that, unlike railroad mergers, many such motor vehicle transactions are not "of any large public consequence." Also, it points out that the section does not apply where the total number of motor vehicles involved is not more than 20. Moreover the proposed amendment would provide that a section 213 order issued without a hearing would not take effect until an opportunity had been afforded for appeal. Other changes in section 213 are recommended "for purposes of clarification."

The report next proposes to amend section 212(a) so as to give the commission power to suspend operating rights or licenses "without hearings or other proceedings" for failure to comply with provisions of the act. The present provision requiring a hearing and a 90-day period after issuance of an order in which to comply is said to be in conflict with other sections covering suspensions for specified cases of non-compliance. Also the commission would change the time allowance in which to comply with an order from 90 days to 30 days.

In view of its other recommendations the commission would bring section 205, dealing with the opportunity for hearing into line. Also, it believes that the use of a recommended report and order under the Motor Carrier Act should be discretionary with the commission, or, where the matter is referred to a joint board, with such board. In this connection it is pointed out that under Part I of the Interstate Commerce Act "the plan of having the examiner issue a proposed report after hearing is normally followed, but this is within the discretion of the commission, and such a report is sometimes dispensed with."

The "miscellaneous" recommendations relate to the definition of a tractor-trailer combination, the commission's lack of power to suspend initial tariffs of motor carriers, and the matter of requiring interstate vehicles to display I. C. C. identification plates.

### A. W. Koehler Joins N. A. M. B. O.

A. W. Koehler, executive secretary of the American Association of Motor Vehicle Administrators, has been appointed secretary-manager of the National Association of Motor Bus Operators with headquarters at Washington, D. C. Mr. Koehler is a former secretary of the National Conference on Street and Highway Safety.

# W. S. Lacher Named Secretary of AREA

## Engineering editor for Railway Age takes new post—Howard succeeds him

Walter S. Lacher, engineering editor of the *Railway Age* and managing editor of Railway Engineering and Maintenance, has resigned, effective March 18, to become secretary of the American Railway Engineering Association and of the Engineering division of the Association of American Railroads, with headquarters at Chicago, to fill the vacancy created by the resignation of E. H. Fritch last year. Neal D. Howard, eastern editor of Railway Engineering and Maintenance and eastern engineering editor of the *Railway Age*, with headquarters at New York, has been promoted to the position made vacant by the resignation of Mr. Lacher, with headquarters at Chicago. Merwin H. Dick, associate editor of the *Railway Age* and of Railway Engineering and Maintenance at Chicago, has been promoted to succeed Mr. Howard at New York.

Walter S. Lacher

Mr. Lacher was born at Winona, Minn., on April 7, 1884, and was graduated from the University of Wisconsin in 1907. He first entered railway service in July, 1905, as a rodman on the Chicago & Alton (now the Alton), and served subsequently as an instrumentman and field draftsman on construction. From July, 1907, to July, 1908, he served as assistant engineer in maintenance and construction on the same road and from the latter date until January, 1909, he was connected with the Illinois Highway Commission as a designer of bridges. At the end of this period Mr. Lacher entered the service of the Chicago, Milwaukee & St. Paul (now the C. M. St. P. & P.), as an engineer draftsman in the bridge department, subsequently becoming office engineer in bridge design. In May, 1915, he joined the staff of the *Railway Age* as assistant engineering editor, becoming western engineering editor a year later. In June, 1916, he was appointed also associate editor of the Railway Maintenance Engineer (now Railway Engineer-

ing and Maintenance), and in 1917 he was promoted to managing editor. In 1931 Mr. Lacher was appointed also engineering editor of the *Railway Age*. Mr. Lacher has been active in the affairs of various railroad associations, including the A. R. E. A., in which he has served on various committees since he became a member in 1913. He is now a member of the Executive Committee of the Roadmasters and Maintenance of Way Association and second vice-president of the American Railway Bridge and Building Association. He has been secretary-treasurer of the Maintenance of Way Club of Chicago since its formation in September, 1921.

Mr. Howard was born at Rochester, N. Y., on December 23, 1898, and received his higher education at Rensselaer Polytechnic Institute, from which he was graduated in 1922 with the degree of C. E. Immediately following graduation he entered the service of the Illinois Central on its St. Louis division, as a chainman, with headquarters at Carbondale, Ill., and on June 4, 1923, he was promoted to rodman, with the same headquarters. During his service on the Illinois Central, which extended until August 15, 1924, Mr. Howard was engaged in both construction and maintenance of way work, and made many performance studies of gang organizations and

**Neal D. Howard**

of units of work equipment. On the latter date, he left the road to become associate editor of the 1926 edition of the Railway Engineering and Maintenance Cyclopedia, published by the Simmons-Boardman Publishing Corporation, with headquarters at Chicago, and in August, 1926, he was appointed eastern engineering editor of the *Railway Age* and eastern editor of Railway Engineering and Maintenance, at New York, where he was located until his recent appointment. Mr. Howard is a member of the American Railway Engineering Association, the Roadmasters and Maintenance of Way Association, the American Railway Bridge and Building Association, the Metropolitan Track Supervisors' Club of New York, and the International Railway Maintenance Club.

Mr. Dick was born on August 19, 1906, at Newton, Kan., and was educated at the University of Kansas, graduating with the class of 1928. He first entered railway service in 1924 as a chainman on the staff of the division engineer of the Atchison, Topeka & Santa Fe at Newton and during ensuing summer vacations he served as a chainman and rodman at this point, at Arkansas City, Kan., and at Chanute, Kan.

**Merwin H. Dick**

After graduation he returned to this company as a rodman, which position he held until October, 1929, when he resigned to go with the Simmons-Boardman Publishing Corporation as associate editor of the *Railway Age* and of Railway Engineering and Maintenance.

## White House Railway Meeting

President Roosevelt stated at his March 1 press conference that no date had been set for the White House railway meeting. Asked if any progress had been made he replied that he didn't know.

## Pennsylvania Utility Body Orders Anthracite Rate Drop

An order providing for reductions in Pennsylvania intra-state anthracite rates, ranging from 7 to 37 cents per gross ton, was issued by the Pennsylvania Public Utility Commission on February 25, the tariff to be effective March 28 on all anthracite carriers in the state.

## Correction

In the *Railway Age* of February 26, page 396, it was stated incorrectly that Charles Donnelly, president of the Northern Pacific, will address the luncheon of the American Railway Engineering Association at the Palmer House, Chicago, on Thursday noon, March 17. The luncheon will be held on Wednesday noon, March 16, instead of Thursday.

## Club Meetings

The Northwest Car Men's Association will hold its next meeting on March 7 in the Midway Club Room, 1957 University Avenue, St. Paul, Minn. A. M. Unger, Pullman-Standard Car Manufacturing Company, will present a paper entitled "Passenger Car Construction."

The New England Railroad Club will hold its 55th annual meeting on Tuesday, March 8 at the Hotel Touraine, Boston, Mass. Dr. Phillips Thomas, research engineer. Westinghouse Electric & Manufacturing Co., will present an address entitled "Adventures in Electricity," utilizing a complete set of apparatus and a miniature laboratory for purposes of illustration. A dinner will be served at 6:30 p. m.

The Toronto Railway Club will hold its annual ladies' night and entertainment on March 21 in the Royal York hotel, Toronto, Ont.

The Women's Traffic Club of Greater New York will hold a dinner meeting on March 8, at the George Washington Hotel, New York. At that time Kinsey N. Merritt, general sales manager, Railway Express Agency, Inc., will speak on "Express Service in the United States." The dinner will begin at 6:30 p. m.

## 11,168 Air-Conditioned Cars

Class I railroads and the Pullman Company on January 1, had 11,168 air-conditioned passenger cars in operation, according to the Association of American Railroads. Of that number 6,407 were owned by the Class I roads and 4,761 by the Pullman Company. In 1937 air-conditioning devices were installed on 3,090 passenger cars, of which 2,481 were owned by the railroads and 609 by the Pullman Company. This equipment included sleeping cars, lounge cars, and other classes of passenger cars.

## P. R. R. Places Eleven More GG-1's in Service

The Altoona Works of the Pennsylvania this week turned out 11 new streamlined electric passenger locomotives of advanced design for service required on the road's eastern seaboard lines by the recent electrification of the main line between the Philadelphia (Pa.) district and Harrisburg, which was described in the *Railway Age* for February 19, page 332. The 11 new locomotives, of the GG-1 type, are in addition to a fleet of 58 of the same type which have been in service between New York, Philadelphia, Baltimore, Md., Washington, D. C., and Paoli, Pa., since 1935. By their introduction a total of 202 electric engines are now in use in the railroad's passenger, freight and switching operations.

## Canadian Roads in January

January net operating revenue of the Canadian Pacific totaled $557,146, a decrease of $356,363 from the $913,509 reported for the corresponding month of last year. Gross revenues at $10,315,459 were slightly above the $10,194,063 for January, 1937, while operating expenses jumped to $9,758,313 from $9,280,554 in the same month of last year.

In January the Canadian National's gross revenues were $13,321,632 as compared with $14,043,352 in January, 1937. Operating expenses were $14,832,385, against $13,960,130 during the corresponding period of last year.

There was a net operating deficit of $1,510,753, as compared with net revenues of $83.22 in January last year.

## Labor Leaders Urge McManamy Reappointment to I. C. C.

George M. Harrison, chairman of the Railway Labor Executives' Association and David B. Robertson, president of the

Brotherhood of Locomotive Firemen and Enginemen, called at the White House on February 24 and urged President Roosevelt to reappoint Commissioner Frank McManamy to the Interstate Commerce Commission. Mr. McManamy, whose term expired at the close of last year, has continued to serve under that provision of the law which leaves an incumbent in office until his successor qualifies.

Commissioner Charles D. Mahaffie whose term also expired on December 31, 1937, was reappointed by President Roosevelt, and confirmed by the Senate on January 11, for the six-year term expiring December 31, 1943.

## Questionnaire Asks "What is the Public Interest?"

Criticism of the term "public interest" in transportation matters as a means of fostering the needs of class or pressure groups is expressed in the foreword of a questionnaire entitled "What is 'public interest' in Individual Versus Private Ownership of Transportation," sent by the Transportation Association of America to its membership and to trade and civic organizations. Herein it is expressed that the association advocates private ownership and operation of all forms of transportation and is opposed to the invasion of any field of private ownership by government in competition with its own citizens. It is pointed out that the questionnaire is distributed to sound views of shippers and other business interests as to what composes the "public interest."

## Byrnes on Governmental Reorganization Bill

Senator Byrnes of South Carolina, who is in charge of the Administration's governmental reorganization bill in the Senate, has made it known that he will not oppose the deletion of Section 205 of the bill which gives the President the power to appoint "policy-making" officials in executive departments and independent agencies. Senator Byrnes, in discussing the bill before the Senate on March 1, said that "Insofar as I am concerned, if any Senator is greatly excited about the provision which we are discussing (Section 205) and believes that the Republic is in danger, personally I have no objection to eliminating it from the bill." Presumably, the bill would give the President power to appoint those staff officials in the Interstate Commerce Commission which he decided were "policy-making."

## Equipment Depreciation Orders

Equipment depreciation rates for six railroads, including the Virginian and the Clinchfield, have been prescribed by the Interstate Commerce Commission in another series of sub-orders modifying previous sub-orders in No. 15100, Depreciation Charges of Steam Railroad Companies. The composite percentages which are not prescribed rates range from 3.07 per cent for the Clinchfield to 11.94 per cent for the Sabine & Neches Valley.

The Virginian's composite percentage of 3.26 is derived from the following prescribed rates: Steam locomotives, 3.65 per cent; other locomotives, 2.82 per cent; freight-train cars, 3.25 per cent; passenger-train cars, 3 per cent; work equipment, 3.87 per cent; miscellaneous equipment, 15 per cent. Prescribed rates for the Clinchfield are: Steam locomotives, 3.21 per cent; freight-train cars, 3 per cent; passenger-train cars, 3.14 per cent; work equipment, 2.81 per cent.

## New York Railroaders Join in Business Welfare Campaign

Railroad executives and railway supply men have joined with other business, employee and welfare leaders of New York City in sponsoring a program for the coordinated financing of more than 800 private health and welfare agencies in the city, under a newly-formed plan known as the Greater New York Fund, Inc. More than 3400 persons gathered at the Centre Theatre, Rockefeller Center on February 24 to hear details of the plan outlined by prominent officials, who disclosed that they will launch a city-wide campaign for contributions totaling $10,000,000 from business firms and employees, beginning May 2.

Railroad and supply industry representatives appearing on the sponsoring committee list are: M. J. Alger, vice-president, New York Central; R. D. Brixey, president, Kerite Insulated Wire & Cable Co.; W. G. Curren, general manager, New York Terminal lines, Baltimore & Ohio; W. F. Cutler, vice-president, American Brake Shoe & Foundry Co.; J. M. Davis, president, Delaware, Lackawanna & Western; W. B. Given, Jr., president, American Brake Shoe & Foundry Co.; C. J. Hardy, president, American Car & Foundry Co.; S. F. Pryor, Jr., assistant to president, American Brake Shoe & Foundry Co.; and D. W. Pyle, president, Tuco Products Corporation.

## I. C. Directors' Headquarters Moved to Chicago

Headquarters of the board of directors of the Illinois Central will be transferred from New York to Chicago. L. A. Downs, president of the Illinois Central, in making the announcement said, "The principal officers of the Illinois Central are in Chicago, but meetings of the board of directors have been held in New York because most of the directors have had their own offices in New York and could more readily attend board meetings there. On the other hand, men of affairs from Chicago and elsewhere along our system lines whose services we would like to have as directors have not been available because of the sacrifice of time that would be required to attend board meetings in New York.

"In order to remedy this situation we have decided to increase the board from 12 to 15 members, in addition to the governor of Illinois, who is an ex-officia director of the company under the terms of our charter from the state, and to elect a number of new directors from along our system lines.

"The view has been expressed by W. A. Harriman, chairman of the executive committee, that unnecessary concentration of industrial control in New York is not desirable, and he has publicly suggested that the direction of business companies should be transferred wherever feasible to the seat of their operations."

## Coal Commission Revokes All Minimum-Price Orders

As an aftermath of stays of minimum coal-price orders granted to the railroads and other consumers, the National Bituminous Coal Commission on February 25 issued an order revoking all previous orders establishing minimum prices and marketing rules and regulations. The statement announcing the commission's action says that it was taken because "the courts in several instances have issued temporary orders" thereby conferring advantages in the buying of coal "upon certain railroads and other public utilities;" and "discrimination has been dealt to those consumers of coal who have not taken court action, and the overwhelming majority of coal producers who are supporting this commission and the prices established by it are placed at a great disadvantage."

In revoking its orders the commission "is aware of the grave consequences which will accrue to the coal industry," and thus it is starting immediately to set up a new schedule "in such manner as to avoid wherever possible the technical objections which have been interposed."

## Western Metal Congress to Meet

The western sections of a number of national technical societies, including the American Society of Mechanical Engineers, the American Welding Society and the American Society for Testing Materials, are co-operating in the Western Metal Congress and Western Metal Exposition to be held at Los Angeles, Calif., March 21 to 25, inclusive. At a session on Monday morning, March 21, at the Biltmore hotel, the Fabrication and Application of Stainless Steels Containing 18 Per Cent Chromium and Over will be discussed by Dr. V. N. Krivobok, associate director of research, Allegheny Steel Company, Brackenridge, Pa. In the afternoon at the Pan-Pacific Auditorium, A. F. Stuebing, railroad mechanical engineer, United States Steel Corporation, New York, will present a paper on High-Tensile Structural Steels in Transportation. On Thursday morning, March 24, at the Biltmore Hotel two other papers of interest to the railroad industry will be presented by J. P. Gill, chief metallurgist, Vanadium Alloys Steel Corp., Latrobe, Pa.; "Carbon and Low-Alloy Tool Steels" and "High Speed and Highly Alloyed Tool Steels."

A series of five educational lectures under the title "Fundamentals of Ferrous Metallurgy" will be given at evening sessions at the Pan-Pacific Auditorium by Dr. A. Allan Bates, manager of chemical and metallurgical department, Westinghouse Electric & Manufacturing Co., Pittsburgh, Pa.

## Freight Car Loadings

Loading of revenue freight for the week ended February 19 totaled 535,790 cars, a decrease of 7,201 cars or 1.3 per cent below the preceding week, a decrease of 175,524 cars or 24.7 per cent below the corresponding week in 1937, and a decrease of 357,-

350 cars or 40 per cent below the same week in 1930. All commodity classifications except livestock and ore showed decreases under the preceding week, while all commodity classifications except grain and grain products showed decreases under last year. The summary, as compiled by the Car Service Division, Association of American Railroads, follows:

**Revenue Freight Car Loading**

| For Week Ended Saturday, February 19 Districts | 1938 | 1937 | 1936 |
|---|---|---|---|
| Eastern ..... | 113,767 | 160,709 | 136,611 |
| Allegheny ..... | 97,669 | 150,393 | 118,603 |
| Pocahontas ..... | 34,984 | 55,053 | 49,411 |
| Southern ..... | 89,899 | 107,213 | 90,348 |
| Northwestern ... | 64,144 | 78,297 | 60,174 |
| Central Western. | 89,515 | 104,557 | 85,489 |
| Southwestern .. | 45,812 | 55,092 | 45,851 |
| Total Western Districts .... | 199,471 | 237,946 | 191,514 |
| Total All Roads | 535,790 | 711,314 | 586,487 |
| Commodities | | | |
| Grain and Grain Products .... | 31,774 | 29,458 | 27,133 |
| Live Stock ..... | 11,178 | 11,660 | 10,119 |
| Coal ..... | 102,681 | 156,579 | 175,669 |
| Coke ..... | 5,415 | 12,060 | 10,148 |
| Forest Products. | 26,331 | 36,937 | 24,393 |
| Ore ..... | 8,160 | 10,945 | 6,044 |
| Merchandise L.C.L. ..... | 146,924 | 166,612 | 131,610 |
| Miscellaneous .. | 203,327 | 287,063 | 201,371 |
| February 19 ... | 535,790 | 711,314 | 586,487 |
| February 12 ... | 542,991 | 688,523 | 631,095 |
| February 5 .... | 564,740 | 671,227 | 621,686 |
| January 29 .... | 553,176 | 653,022 | 621,890 |
| January 22 .... | 570,333 | 665,346 | 584,637 |
| Cumulative Total, 7 Weeks ..... | 3,899,944 | 4,785,513 | 4,271,995 |

*In Canada.*—For the week ended February 19, carloadings totaled 44,705, as against 43,515 cars for the previous week and 46,689 cars for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

| | Total Cars Loaded | Total Cars Rec'd from Connections |
|---|---|---|
| Total for Canada: | | |
| February 19, 1938..... | 44,705 | 21,255 |
| February 12, 1938..... | 43,515 | 21,849 |
| February 5, 1938..... | 45,099 | 22,388 |
| February 20, 1937..... | 46,689 | 28,137 |
| Cumulative Totals for Canada: | | |
| February 19, 1938..... | 313,158 | 153,713 |
| February 20, 1937..... | 324,573 | 189,147 |
| February 15, 1936..... | 278,088 | 152,681 |

## Truckers Prepare for Rate Boost

The National Revenue Committee of the American Trucking Associations, Inc., has prepared a tentative plan for seeking increases in motor truck rates in proportion to such increases as may be allowed the railroads in the Interstate Commerce Commission's forthcoming Ex Parte 123 decision. The American Trucking Associations made a presentation at the Ex Parte 123 hearings to set forth that the plight of the trucking industry was akin to that of the rail carriers, and that increased charges were necessary to meet increasing costs.

The A. T. A. plan contemplates publication by that organization of a master tariff containing conversion tables to revise rates on all commodities except those which may be subject to maximum increases. Individual carriers and their agents could then participate in the increases by the publication of single-page "connecting-link" supplements, making their tariffs subject to the master tariff. The petition would also seek authority to put the rates in on short notice.

## 70 Per Cent Say "No" in Government Ownership Survey

A majority of 70 per cent of citizens replying to an "opinion-testing" ballot distributed by the American Institute of Public Opinion (Dr. George Gallup, director), were opposed to government ownership of railroads. Thus, only 30 per cent of a typical cross section of our population covered by the questionnaire studies of the institute replied "yes" to the question "Do you believe the government should buy, own and operate the railroads?" To the second question of the survey made by the institute—"Do you think the railroads would be run more efficiently if the government owned and operated them?," the vote totaled for "no" from 64 per cent and "yes" from 36 per cent.

The institute then asked its "questionees" whether, regardless of what they thought of the desirability of government ownership, they thought the government would be forced to take over the railroads eventually. To this query 62 per cent of the citizens replied in the negative and 38 per cent wrote "yes."

The American Institute of Public Opinion is an independent, non-partisan organization which seeks to place the operation of recording and testing of public opinion on a scientific basis and according to the best principles of sampling and statistical theory. The survey summarized above was printed more fully in the New York Times of February 25.

## Hood Letter to Splawn Cites "Major" Rail Problem

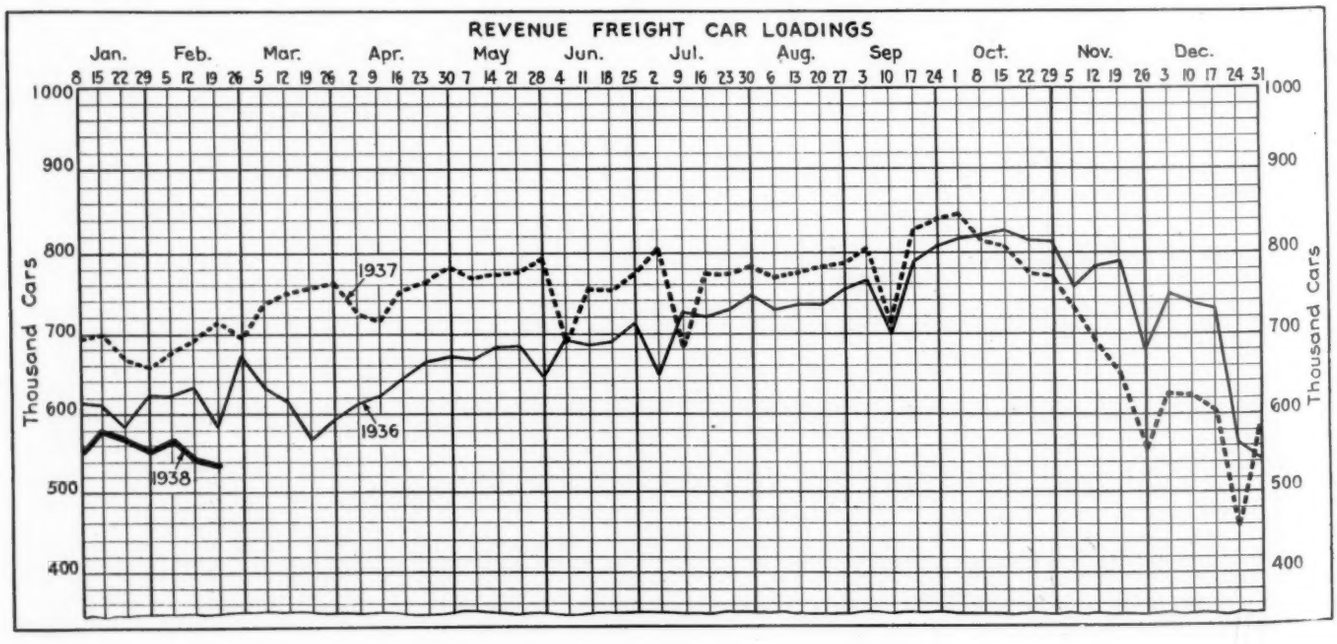
J. M. Hood, president of the American Short Line Railroad Association, last week sent to Chairman Splawn of the Interstate Commerce Commission a letter suggesting a program "for consideration by the President's select committee on railroads, of which you are chairman, as a correct statement of the major present-day railroad problem, which, until solved, effectually prevents substantial progress through correction of lesser evils." Copies of the letter were sent to the 12 others who have been invited to participate in the White House railway meetings.

The basic railroad difficulty is set forth by Mr. Hood as follows:

"How can national, state and municipal, legislative and regulatory bodies be prevented from:

"I. Expending public monies (a substantial part of which is derived through taxation of railroads) to: (a) Directly compete with railroads through government-owned barge lines, highway vehicles, etc.; (b) Subsidize competing forms of transportation through terminals, channels, highways, etc., provided free or at less than cost and not subject to taxation, and, through research, weather, signaling and similar services without charge.

"II. Compelling unnecessary or unfair



capital, maintenance and operating expenditures by railroads in response to political pressure, public prejudice and local pride.

"III. Making railroads probably the largest, though least able, contributors to alleviate private suffering in times of disaster due to all the power of government being exerted to that end; and,

"IV. Through the land-grant statutes, obtaining government transportation at less than a fair price."

Mr. Hood explains that while this language is his own and "has not been approved by the 323 short and independently-operated railroads, members of this Association, it is substantially in accord with policies adopted by these member lines at their regional and annual meetings and represents my impression of the consensus of their opinions."

## Howson Tells Toronto Railway Club of Improvements

Recent developments carried out by the carriers of the United States and Canada were outlined in a talk before the Toronto Railway Club, Toronto, Ont., on February 28, by Elmer T. Howson, vice-president of the Simmons-Boardman Publishing Corporation and western editor of *Railway Age*. A major part of these developments, he pointed out, were carried out during the five years ending with 1936, in spite of the fact that in each of these years the investment in United States railroads alone averaged $660,000,000 *less* than in each of the preceding 15 years and average annual maintenance expenditures were $922,000,000 *less* than those for the preceding 15 years.

Reviewing improvements in rolling stock and speeds, Mr. Howson pointed out that 15 streamlined, high-speed passenger trains were placed in service in 1937, bringing the total number in operation to 54; and that the American carriers are now operating more trains at speeds of 80 m. p. h. or higher than those of any other country. In illustration of the popularity of such runs, the speaker pointed to the average of 800 passengers which patronize the Milwaukee road's "Hiawatha" daily and the average of 738 which rode the Southern Pacific's "Daylight" trains each day during the first seven months of their operation.

Maintenance problems especially have been changed by such high-speed runs, Mr. Howson declared, and "curvature has now replaced gradient as the chief obstacle to train movement." The character of this change in operating viewpoint he illustrated by referring to the current practice of some roads to issue train orders when conditions require that speeds be reduced below 90 m. p. h.

## Routes Through Floydada, Tex., Gateway

The Interstate Commerce Commission, upon rehearing and reconsideration, has modified findings of a previous report to require the removal of undue prejudice, discrimination and preference which it now finds to exist in connection with the failure or refusal of the Atchison, Topeka & Santa Fe and other railroads to establish through routes and joint rates with the Quanah, Acme & Pacific through the Floydada, Tex., gateway. The decision in No. 26070, Quanah, Acme & Pacific Railway Company v. Atchison, Topeka & Santa Fe Railway Company et al., makes seven findings, summarized in the report as follows:

1. On transcontinental traffic certain circuitous through routes via specified gateways in the States of Texas and Oklahoma not embracing the line of the Quanah, Acme & Pacific Railway Company found unreasonably long as compared with other practicable shorter through routes embracing that line.
2. Maintenance of joint transcontinental rates over the specified circuitous routes while failing and refusing to maintain the same joint rates over less circuitous routes embracing the line of the Quanah, Acme & Pacific found unduly prejudicial, unduly discriminatory and unduly preferential.
3. On traffic between points on the system lines of the Atchison, Topeka & Santa Fe Railway Company in the Panhandle of Texas and points north and east of Red River, Tex., certain circuitous through routes with specified connecting lines not embracing the line of the Quanah, Acme & Pacific found unreasonably long as compared with other practicable shorter through routes embracing that line.
4. Maintenance of joint rates over the circuitous routes specified in the preceding finding while failing and refusing to maintain the same joint rates over less circuitous routes embracing the line of the Quanah, Acme & Pacific found unduly prejudicial, unduly discriminatory and unduly preferential.
5. Maintenance of the joint rates specified in findings 2 and 4 over routes not embracing the line of the Quanah, Acme & Pacific and not exceeding the stated circuity but which short haul defendants, while failing and refusing to maintain the same joint rates over routes embracing the line of the Quanah, Acme & Pacific and not exceeding the stated circuity but which would also short haul defendants, found unduly prejudicial, unduly discriminatory and unduly preferential.
6. Existing combination rates over the route of the Quanah, Acme & Pacific via Floydada, Tex., on transcontinental traffic, as well as on traffic between points on the Santa Fe system lines in the Texas Panhandle and points north and east of Red River, not shown to have been unreasonable.
7. Order entered requiring removal of the undue prejudice, discrimination and preference, and modifying the previous orders in this proceeding.

## U. S. Supreme Court Orders

Decisions in several cases affecting railroads and their subsidiaries were handed down by the United States Supreme Court at its regular session on February 28. In two cases, the Court upheld the decisions of the Interstate Commerce Commission. One case involved a challenge by the Georgia & Florida of a mail pay order of the commission. The Court held valid a commission order which fixes a flat per mile rate for railroads more than 100 miles in length. The ruling had been held unfair by a special federal district court in its application to the Georgia & Florida. The ruling of the Supreme Court constituted a reversal of the decision of the lower court.

In another case the Court upheld a commission order authorizing the Chicago, Milwaukee, St. Paul & Pacific and the Chicago & North Western to pool their iron ore traffic from the Menominee range in Michigan and Wisconsin to the docks at Escanaba, Mich., and to pool revenues, expenses, tracks, equipment and employees engaged in that traffic. The Escanaba & Lake Superior opposed the commission order and brought suit in the U. S. District Court for the Western District of Michigan. The Escanaba & Lake Superior took the position that since it had an agreement with the Milwaukee which gave the latter trackage rights for iron ore trains, it was a "carrier involved" within the meaning of the provisions of the Interstate Commerce Act which cover pooling agreements. The high court held that while the road would be affected by the pool and had a right to be heard on the question, it was not a party to the agreement and could not prevent the pooling arrangement by withholding its assent to the agreement. The court also pointed out that the Escanaba is not a carrier of the ore but that it merely sold trackage rights for ore traffic to the Milwaukee.

In two cases involving the Pennsylvania Greyhound Lines and the Pacific Greyhound Lines, affiliates respectively of the Pennsylvania and the Southern Pacific, the court upheld orders of the National Labor Relations Board directing the companies to withdraw all recognition of company unions and the posting of notices of such withdrawal.

In another case docketed as the United States versus the Illinois Central, Justice Butler decided that the continuous confinement of cattle in a railroad car for 37 hours due to the oversight of the railroad's yardmaster, who negligently failed to instruct an employee to unload the cattle, was a "knowing and willful" violation of the provisions of a federal statute. The court took the position that the railroad knew when the car would arrive at the yard, and the negligence of the yardmaster was a willful failure to unload within the meaning of the statute. The fact that an employee was negligent does not excuse the railroad, said the court.

## Senate Hearing on Wabash Is Concluded

The Senate subcommittee investigating railroad finance concluded another phase of its investigation on February 26, when Senator Truman of Missouri, the acting chairman, announced that with the completion of its scrutiny of the financial activities of the Wabash, the committee would be in recess subject to the call of the chairman. At the February 24 session, the committee investigators presented evidence which, according to Senator Truman, showed that the Wabash had "syphoned" funds from its subsidiaries to make its own cash position appear in a better light in 1930. He further charged that the carrier had built up its income account by artificial means in order that it might have its bonds listed in New York and other states as a legal investment for savings banks and insurance companies.

A. K. Atkinson, treasurer of the Wabash, told the committee that the company had dipped into the resources of its subsidiaries to offset its steadily declining earnings, but that it had done so because it believed that "prosperity was just around the corner." He went on to say that "We used what we thought was good judgment at that time."

At the concluding session of the Wabash hearing on February 26, the committee heard Mr. Atkinson testify that unpaid dividends of subsidiaries were carried as current assets on the books of the Wabash for five years. He also said that the Ann Arbor, a wholly owned subsidiary of the Wabash, declared a dividend of more than a $1,000,000 at the end of

1930. Despite the fact that this dividend was never paid, he said, it was carried on the books of the Wabash as current assets until 1935 when it was transferred to the deferred assets account and finally, in March, 1936, charged to profit and loss. The committee also learned from Mr. Atkinson that at the same time, the New Jersey, Indiana & Illinois, another subsidiary, declared a five per cent dividend on its common stock, all of which was owned by the Wabash. Like the Ann Arbor dividend, this was never paid and was carried on the books as a current asset until 1935 when it was transferred to deferred assets and charged off in 1936.

Mr. Atkinson also told the committee that in 1930 the board of directors of the Wabash voted to raise the salary of its chairman, William D. Williams, from $60,000 to $140,000 a year, an increase of 133 per cent.

The committee also questioned J. W. Newell, chief accounting officer, and W. Schindele, freight and passenger accountant of the Wabash, regarding the employment by the Wabash of a firm of outside accountants to audit some of their interline accounts. This firm, the National Railway Examiners, Inc., was employed, according to Mr. Newell, to audit back accounts to discover whether or not the Wabash could collect money from connecting carriers. The Senate investigators charged that these outside accountants were "gouging" the railroads and forced Mr. Newell to admit that were the practice of employing outside accountants universally resorted to by carriers to audit their interline accounts, it would result in nothing less than a direct loss to the railroad industry.

## Retirement Board Got "Bad Breaks"

(*Continued from page 424*)

promise policy." It increased its staff for a few months "to a point approximately double that provided for by the budget as a yearly average"; but, being unable to secure additional funds to keep such a staff at work, it made the recent lay-off, choosing "the lesser of the two evils" before it—"immediate reductions or a much greater reduction later on." No one with a permanent civil-service status was affected, and the reduction did not wipe out the current deficit.

Meanwhile the Board has introduced short-cut methods, enabling partial payments, and has postponed certain work that was not necessary to the adjudication of the claims. It has thus been able "to make at least a partial payment or determine finally that an applicant was ineligible in approximately 100,000 cases, which is several times as large as the case load will be when operations settle down to normal." And Mr. Latimer anticipates that within the next few months the Board "will be able to make at least some payment on every eligible application for annuity, providing a few of the large railroads, which have not been co-operating as well as they should, begin to improve their work."

Mr. Latimer goes on to point out how "it is natural that in the early stages of the operations of the act more difficulties will arise than later on," adding that one of the main reasons for this has been the time it has taken employees generally to become familiar with the provisions of the act. In this connection the Board has recently suggested to Class I roads that they have local officers and agents aid applicants, just as labor union officers have been doing. Mr. Latimer realizes that "not all of the railroads will be able immediately to do this effectively, because of the fact that they have not been able to clean up their own part of the peak load." He thinks, however, that "within the next few months we shall be able to secure much relief with the assistance of labor organizations and railroad managements."

In the above-mentioned closing reference to his belief that the Board's record is "a good one," Mr. Latimer goes on to say that "within seven short months it has become one of the largest insurance institutions in the world, in terms of number of policyholders, annuitants and annuity payments, premium, income and staff. The Board has opened up almost 2,000,000 accounts which will determine amounts of future annuities, has given opportunity, as was necessary under the act, to almost 180,000 employees to elect joint and survivor annuities, and has handled queries, documents, applications and letters to the number of many millions."

## Meetings and Conventions

*The following list gives names of secretaries, date of next or regular meetings and places of meetings:*

AIR BRAKE ASSOCIATION.—R. P. Ives, Westinghouse Air Brake Co., 350 Fifth Ave., New York, N. Y.

ALLIED RAILWAY SUPPLY ASSOCIATION. — J. F. Gettrust, 1108 New Post Office Bldg., Chicago, Ill.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—W. R. Curtis, F. T. R., M. & O. R. R., 327 S. La Salle St., Chicago, Ill.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS. — E. P. Soebbing, 1431-B Railway Exchange Bldg., St. Louis, Mo. Annual meeting, October 11-13, 1938, San Francisco, Cal.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—B. D. Branch, C. R. R. of N. J., 143 Liberty St., New York, N. Y.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—F. O. Whiteman, Union Station, St. Louis, Mo. Annual meeting June 7-9, 1938, Hotel Stevens, Chicago, Ill.

AMERICAN ASSOCIATION OF RAILWAY ADVERTISING AGENTS. — E. A. Abbott, Poole Bros., Inc., 85 W. Harrison St., Chicago, Ill.

AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—F. R. Borger, C. I. & L. Ry., 836 S. Federal St., Chicago, Ill. Annual meeting, October 10-12, 1938, St. Paul, Minn.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty 319 N. Waller Ave., Chicago, Ill. Annual meeting, October 18-20, 1938, Hotel Stevens, Chicago, Ill.

AMERICAN RAILWAY CAR INSTITUTE.—W. C. Tabbert, 19 Rector St., New York, N. Y.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION. —E. J. Hoddy (Second Vice-Pres.), Louisville & Nashville R. R., Louisville, Ky. Next meeting, June, 1938, Montreal, Que.

AMERICAN RAILWAY ENGINEERING ASSOCIATION. —Works in co-operation with the Association of American Railroads, Engineering Division.—Frank McNellis (Asst. Secy.), 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 15-17, 1938, Palmer House, Chicago, Ill. Exhibit by National Railway Appliances Association, March 14-17, International Amphitheatre, Union Stockyards, Chicago, Ill.

AMERICAN RAILWAY MAGAZINE EDITORS' ASSOCIATION. — M. W. Jones, Baltimore & Ohio R. R., Mt. Royal Station, Baltimore, Md.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—G. G. Macina, C. M., St. P. & P. R. R., 11402 Calumet Ave., Chicago, Ill.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—R. E. Schindler, Union Trust Bldg., Washington, D. C.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS. —C. E. Davies, 29 West 39th St., New York, N. Y. Spring meeting, March 23-25, 1938, Hotel Biltmore, Los Angeles, Cal.
Railroad Division.—Marion B. Richardson, 21 Hazel Ave., Livingston, N. J.

AMERICAN TRANSIT ASSOCIATION.—Guy C. Hecker, 292 Madison Ave., New York, N. Y. Annual meeting, September 19-23, 1938, Auditorium, Atlantic City, N. J.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—H. L. Dawson, 1427 Eye St., N. W., Washington, D. C. Annual meeting, January 24-26, 1939, Washington, D. C.

ASSOCIATION OF AMERICAN RAILROADS. — H. J. Forster, Transportation Bldg., Washington, D. C.
Operations and Maintenance Department. J. M. Symes, Vice-President, Transportation Bldg., Washington, D. C.
Operating-Transportation Division. — L. R. Knott, 59 E. Van Buren St., Chicago, Ill.
Transportation Section.—L. R. Knott, 59 E. Van Buren St., Chicago, Ill.
Freight Station Section.—L. R. Knott, 59 E. Van Buren St., Chicago, Ill.
Operating Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.
Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.
Protective Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.
Safety Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.
Telegraph and Telephone Section. — W. A. Fairbanks, 30 Vesey St., New York, N. Y. Annual meeting, October 18-20, 1938, Hotel Jefferson, St. Louis, Mo.
Engineering Division. — Frank McNellis (Asst. Secy.), 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 15-17, 1938, Palmer House, Chicago, Ill. Exhibit by National Railway Appliances Association, March 14-17, International Amphitheatre, Union Stockyards, Chicago, Ill.
Construction and Maintenance Section. —Frank McNellis (Asst. Secy.), 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 15-17, 1938, Palmer House, Chicago, Ill.
Electrical Section.—Frank McNellis (Asst. Secy.), 59 E. Van Buren St., Chicago, Ill.
Signal Section.—R. H. C. Ballie, 30 Vesey St., New York, N. Y. Annual meeting, April 5-7, 1938, Roosevelt Hotel, New Orleans, La.
Mechanical Division.—V. R. Hawthorne, 59 E. Van Buren St., Chicago, Ill.
Electrical Section.—J. A. Andreucetti, 59 E. Van Buren St., Chicago, Ill.
Purchases and Stores Division.—W. J. Farrell, 30 Vesey St., New York, N. Y.
Freight Claims Division.—Lewis Pilcher, 59 E. Van Buren St., Chicago, Ill. Annual meeting, June 7-9, 1938, Chicago, Ill.
Motor Transport Division.—George M. Campbell, Transportation Bldg., Washington, D. C.
Car-Service Division. — E. W. Coughlin, Transportation Bldg., Washington, D. C.
Finance, Accounting, Taxation and Valuation Department.—E. H. Bunnell, Vice-President, Transportation Bldg., Washington, D. C.
Accounting Division. — E. R. Ford, Transportation Bldg., Washington, D. C. Annual meeting, 1938, Toronto, Ont.
Treasury Division.—E. R. Ford, Transportation Bldg., Washington, D. C.
Traffic Department. — A. F. Cleveland, Vice-President, Transportation Bldg., Washington, D. C.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—F. L. Johnson, Claim Agent, Alton R. R., 340 W. Harrison St., Chicago, Ill. Annual meeting, May 18-20, 1938, Statler Hotel, St. Louis, Mo.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS. —(See Association of American Railroads.—Mechanical Division.—Electrical Section.)

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—W. S. Carlisle, National Lead Company, 900 W. 18th St., Chicago, Ill. Meets with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.— C. R. Crook, 2271 Wilson Ave., N. D. G., Montreal, Que. Regular meetings, second Monday of each month, except June, July and August, Windsor Hotel, Montreal, Que.

CAR DEPARTMENT OFFICERS' ASSOCIATION.—Frank Kartheiser, Chief Clerk, Mechanical Dept., C. B. & Q., Chicago, Ill.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—G. K. Oliver, 2514 W. 55th St., Chicago, Ill. Reg-

ular meetings, second Monday of each month, except June, July and August, La Salle Hotel, Chicago, Ill.

CAR DEPARTMENT ASSOCIATION OF ST. LOUIS, MO.—J. J. Sheehan, 1101 Missouri Pacific Bldg., St. Louis, Mo. Regular meetings, third Tuesday of each month expect June, July and August, Statler Hotel, St. Louis, Mo.

CENTRAL RAILWAY CLUB OF BUFFALO.—Mrs. M. D. Reed, 1817 Hotel Statler, McKinley Square, Buffalo, N. Y. Regular meetings, second Thursday of each month except June, July and August, Hotel Statler, Buffalo, N. Y.

EASTERN ASSOCIATION OF CAR SERVICE OFFICERS. J. T. Bougher, 424 W. 33rd St. (11th floor), New York, N. Y. Next meeting, March 31, 1938, Hotel Cleveland, Cleveland, Ohio.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION. — F. T. James, General Foreman, Delaware, Lackawanna & Western, Kingsland, N. J.

INTERNATIONAL RAILWAY MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich.

MASTER BOILER MAKERS' ASSOCIATION. — A. F. Stiglmeier, 29 Parkwood St., Albany, N. Y.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—Clyde S. Bailey, 806-808 13th and E Sts., N. W., Washington, D. C. Annual meeting, November 15-18, 1938, New Orleans, La.

NATIONAL RAILWAY APPLIANCES ASSOCIATION. — C. H. White, Room 1826, 208 S. La Salle St., Chicago, Ill. Exhibit at A. R. E. A. Convention, March 14-17, 1938, International Amphitheatre, Union Stockyards, Chicago, Ill.

NEW ENGLAND RAILROAD CLUB. — W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, second Tuesday of each month, except June, July, August and September, Hotel Touraine, Boston, Mass.

NEW YORK RAILROAD CLUB. — D. W. Pye, 30 Church St., New York, N. Y. Regular meetings, third Friday of each month, except June, July, August, September and December, 29 W. 39th St., New York, N. Y.

PACIFIC RAILWAY CLUB. — William S. Wollner, P. O. Box 3275, San Francisco, Cal. Regular meetings, second Thursday of each month, alternately at San Francisco and Oakland, except June at Los Angeles and October at Sacramento.

RAILWAY BUSINESS ASSOCIATION.—P. H. Middleton, First National Bank Bldg., Chicago, Ill.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 1941 Oliver Bldg., Pittsburgh, Pa. Regular meetings, fourth Thursday of each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. McC. Price, Allen-Bradley Company, 600 W. Jackson Blvd., Chicago, Ill.

RAILWAY FIRE PROTECTION ASSOCIATION.—P. A. Bissell, 40 Broad St., Boston, Mass.

RAILWAY FUEL AND TRAVELING ENGINEERS' ASSOCIATION. — T. Duff Smith, 1255 Old Colony Bldg., Chicago, Ill.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION. — J. D. Conway, 1941 Oliver Bldg., Pittsburgh, Pa. To meet with Mechanical Division and Purchases and Stores Division, Association of American Railroads.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with Telegraph and Telephone Section of A. A. R.

RAILWAY TIE ASSOCIATION.—Roy M. Edmonds, 903 Syndicate Trust Bldg., St. Louis, Mo.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—C. A. Lichty, 319 N. Waller Ave., Chicago, Ill. Annual meeting, September 20-22, 1938, Hotel Stevens, Chicago, Ill.

SIGNAL APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with A. A. R., Signal Section.

SOCIETY OF OFFICERS, UNITED ASSOCIATION OF RAILROAD VETERANS.—J. W. O'Neill, Delaware, Lackawanna & Western, Hoboken, N. J. Annual meeting, October 8, 1938, Chicago, Ill.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB. —A. T. Miller, 4 Hunter St., S. E., Atlanta, Ga. Regular meetings, third Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta, Ga.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS. — D. W. Brantley, C. of Ga. Ry., Savannah, Ga.

TORONTO RAILWAY CLUB.—D. M. George, P. O. Box 8, Terminal "A," Toronto, Ont. Regular meetings, fourth Monday of each month, except June, July and August, Royal York Hotel, Toronto, Ont.

TRACK SUPPLY ASSOCIATION.—Lewis Thomas, Q. & C. Company, 59 E. Van Buren St., Chicago, Ill. Meets with Roadmasters' and Maintenance of Way Association.

WESTERN RAILWAY CLUB. — C. L. Emerson, C. M., St. P. & P., Chicago, Ill. Regular meetings, third Monday of each month, except June, July, August and September, Hotel Sherman, Chicago, Ill.

# Supply Trade

## American Steel Foundries

The annual report of the American Steel Foundries for 1937 shows a net profit of $3,617,761 as compared with $2,953,426 in the previous year. Gross sales less discounts, returns and allowances for the year were $35,972,070, as compared with $23,043,167 in 1936. The balance sheet shows a ratio of quick assets to liabilities of 6.5 to 1. Expenditures charged to property account for additions to plants and equipment totalled $3,279,578, which includes the purchase of the business and property of the foundry plant of the Pressed Steel Car Company, Inc., McKees Rocks, Pa., for a consideration of 23,000 shares of common stock at a stated value of $920,000. The foundry plant at Pittsburgh, Pa., was dismantled and disposed of and the business of the plant was transferred to the foundry plant at Verona, Pa. The net additions to property account for the year, after deducting discards and other credits, amounted to $1,996,800. Taxes for the year amounted to $1,861,270, equivalent to $1.57 per share of common stock. Normal federal income taxes amounted to $777,389, and surtax on undistributed profits $160,000 while social security taxes, unemployment insurance and federal old age benefits totalled $388,890. Unfilled orders at this time, according to the statement of George E. Scott, president, to stockholders, amount to about $2,000,000, as compared with those at the same time in 1936 of $12,000,000. The prospects for the next several months are uncertain. If the Interstate Commerce Commission grants the railroads a satisfactory increase in freight rates and there is improvement in general business it is hoped that there will be substantial buying of freight cars, passenger cars and locomotives during the summer and fall of 1938.

The consolidated statement of income for the year ending December 31, 1937, in comparison with 1936, is shown in the accompanying table.

| | 1937 | 1936 |
|---|---|---|
| Gross sales, less discounts, returns and allowances | $35,972,070 | $..... |
| Deduct: | | |
| Cost of goods sold (exclusive of provision for depreciation) plus manufacturing, selling and administrative expenses | $30,059,278 | ..... |
| Depreciation | 1,314,921 | 1,107,458 |
| Net profit from operations | 4,597,871 | 3,518,109 |
| Add—Miscellaneous income: | | |
| Interest on marketable securities and income from investments | 47,230 | 41,711 |
| Discount and sundry interest | 77,994 | 126,438 |
| Profit from securities sold (less loss on property disposed of $155,795) | 47,347 | ..... |
| Other income | 110,262 | ..... |
| | $4,880,704 | $3,686,258 |
| Deduct: | | |
| Miscellaneous income deductions | $124,449 | ..... |
| Underwriting commissions and expenses in connection with sale of common stock | 185,752 | ..... |
| Provision for normal federal income taxes | 777,389 | 590,772 |
| Net earnings of subsidiary company appertaining to outstanding minority stockholdings | 15,353 | 12,060 |
| Net income before deducting surtax | $3,777,761 | $3,083,426 |
| Provision for surtax on undistributed profits | 160,000 | 130,000 |
| Net income carried to earned surplus | $3,617,761 | $2,953,426 |

## Lima Annual Report

The Lima Locomotive Works, Lima, Ohio, reports for the year ended December 31, 1937, a net profit of $1,019,983 after all charges including depreciation, as compared with a net loss of $251,104 for 1936. The earned surplus at the end of the year was $331,680.

It is stated that the volume of sales billed during 1937 was the largest since 1930. Some 101 locomotives were shipped during the year, as compared with 21 deliveries in 1936. On the other hand, it is pointed out that orders for only 22 locomotives were received during 1937, compared with 104 in 1936. Unfilled orders at the close of 1937 amounted to $821,482. Sales of the shovel and crane division compared favorably with the preceding year except in the last quarter, when the market was adversely affected by "generally unsatisfactory business conditions."

In a brief review of the equipment market as reflected in the 1937 record, Samuel G. Allen, chairman of the board, points out that about the middle of 1937 the encouraging aspect of equipment purchase programs of the carriers "gave way before increased costs of railway operations and a sharp decline in traffic volume, due to the recession in general business, with the result that practically no orders for locomotives were placed during the latter half of the year. This situation became increasingly aggravated as the year came to a close and no improvement has been evidenced thus far during the current year. Favorable action by the Interstate Commerce Commission on the request of the Railroads for increases in rates, if combined with a return to a normal volume of traffic, should again open the market for equipment, as the need of the railroads for additional modern locomotives and other rolling stock is universally recognized."

The balance sheet as of the close of 1937 shows total current assets amounting to $7,439,813 and current liabilities of $565,383. Included in the current assets are a cash amount of $3,294,347 and marketable securities booked at $34,255.

To provide additional working capital

for financing locomotive orders, Lima sold during January and February, 1937, 29,200 shares of its capital stock for $1,917,835. Since these shares had been re-acquired previously at a cost of $538,389, the gain in the transaction amounted to $1,379,446, which was credited to the capital surplus account.

Operating costs for the year included a sum of $273,198 assigned to depreciation of plant and equipment, an increase of $140,142 over the sum of $133,056 so assigned in 1936. Additions to property, "necessitated by changes in design of locomotives and increase in size of locomotive tenders" cost approximately $340,000.

During the year two dividends totaling $527,643 of respectively $1 and $1.50 per share were declared and paid on 211,057 shares of capital stock outstanding.

**Manning, Maxwell & Moore, Inc.,** Bridgeport, Conn., has appointed nine new field salesmen in territories as follows: **Paul Hayden,** Charlotte, N. C., **W. H. Kissam,** Jacksonville, Fla., **R. F. Heath,** New Orleans, La., **K. W. Johansson,** Minneapolis, Minn., **W. S. Adams,** Columbus, Ohio, **V. W. Farris,** New York City, **H. H. Jones,** Philadelphia, Pa., **H. B. Stallings,** Chicago and **C. W. Velie,** Tulsa, Okla. Two new district sales managers were also appointed: **R. W. Neel,** who has represented the company for a number of years is now in charge of the newly created southeastern district, with headquarters at Atlanta, Ga., and **Malcolm Black,** has been appointed manager of the southwestern district, with headquarters at Tulsa.

**Lewis M. Parsons,** formerly manager of sales of the Bethlehem Steel Company, with headquarters at Philadelphia, Pa., has been elected vice-president in charge of sales and a director of the **Jones & Laughlin Steel Corp.,** Pittsburgh, Pa. He was educated at the University of Pennsylvania and in 1917 entered the de-

**Lewis M. Parsons**

stroyer service of the U. S. Navy. Later in the World war he served in the Naval Flying Corps. After the war, he entered the employ of the Bethlehem Steel Company in the sales division and was made assistant manager of sales at Philadelphia in 1932. In 1936 he was promoted to manager of sales at the same office.

# Westinghouse Elects G. H. Bucher President, F. A. Merrick becomes Vice-Chairman

George H. Bucher who has been elected president of the Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa., as was announced in the *Railway Age* of February 26, was born at Sunbury, Pa., and after graduation from the high school

Blank & Stoller

**George H. Bucher**

of his native town, he entered Pratt Institute, Brooklyn, N. Y., to study machine design and electrical engineering. Mr. Bucher joined the Westinghouse Electric & Manufacturing Company at East Pittsburgh as a graduate student on September 1, 1909, in its East Pittsburgh plant. Two years later, he was transferred as a clerk to the export department of the company which has since become the Westinghouse Electric International Company. Mr. Bucher took an active part in connection with electrification work in Japan, in which the Westinghouse Company participated prominently in the modernizing plans of that country. In 1920 he was appointed assistant to general manager of the Westinghouse Electric International Company; a year later was appointed assistant general manager and in 1932, served with that company as vice-president and general manager. In 1934, Mr. Bucher was elected president and general manager of the same company, and the following year he became a vice-president of the parent company, the Westinghouse Electric & Manufacturing Company. Since 1937, Mr. Bucher has served as executive vice-president and a director of the parent company.

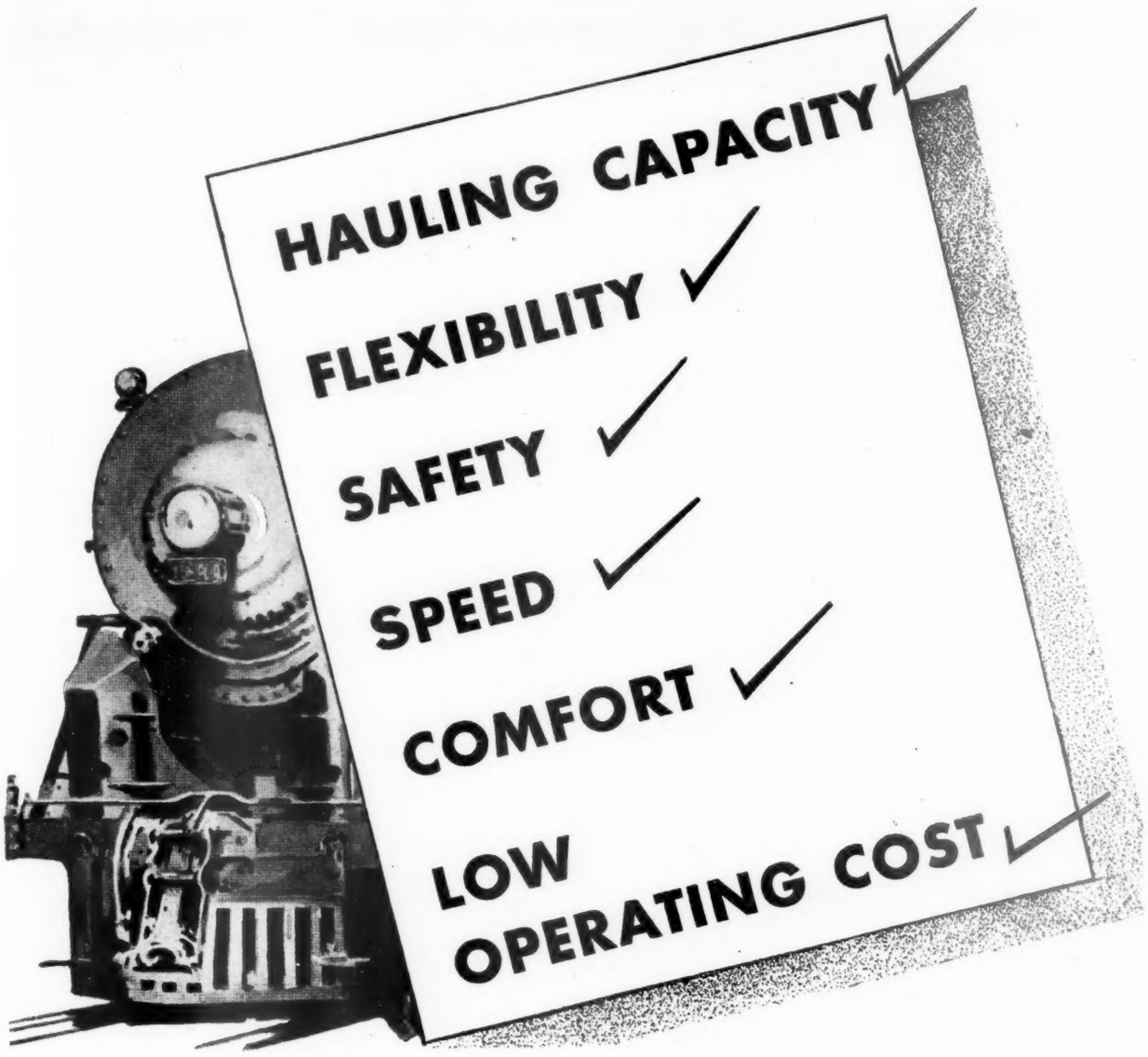
Frank A. Merrick who has been elected vice-chairman of the Westinghouse Electric & Manufacturing Company, as reported in the *Railway Age* of February 26, was born at Lambertville, N. J., and was educated in electrical engineering at Lehigh University from which he was graduated in 1891. During the same year, he entered the employ of the Thomson-Houston Electric Company. He then served successively with the engineering firm of Blood & Hale, and as manager and chief engineer of the Steel Motor Company; when the latter company was absorbed by the Westinghouse Electric & Manufacturing Company in 1902, Mr. Merrick entered the Westinghouse organization. The following year, when the Canadian Westinghouse Company, Ltd., was formed, he had charge of the construction

**Frank A. Merrick**

of its plant at Hamilton, Ont. He remained there as superintendent and later served successively as manager, vice-president, general manager and director. For two years after the war, Mr. Merrick was located in London, England, as special representative of the Westinghouse Electric International Company; he then returned to his duties in Canada with the Canadian Westinghouse Company, Ltd. In 1925, he was elected vice-president and general manager of the Westinghouse Electric & Manufacturing Company with office at East Pittsburgh, Pa. In 1929, he was elected president and now becomes vice-chairman of the board of the same company.

**J. M. Taylor,** vice-president and manager at New Orleans, La., of the New Orleans Building Materials District of the **Johns-Manville Sales Corporation** has been transferred from the management of that district to the staff of the president of the sales corporation, with headquarters, as formerly, at New Orleans. Mr. Taylor continues as vice-president of the sales corporation, but has been relieved of the duties of district managership to devote more of his time to this special assignment. He was born at Winona, Miss., in 1862 and served in the mechanical and stores department of the Illinois Central in 1879. Mr. Taylor left that road in 1910, after a service of 31 years. He entered the service of Johns-Manville in its sales department in Texas, 23 years ago. In 1916, he was promoted to the managership of the New Orleans, La. office of the southwestern division, and with the exception of a short period of time when he served in Chicago, his work has been entirely in the south.

*Continued on next left-hand page*




Today steam power alone can meet all these fundamental requirements. The great advances in the design and building of steam locomotives in the last few years have made this true for all classes of railway service.

LIMA LOCOMOTIVE WORKS, LIMA LOCOMOTIVE WORKS INCORPORATED INCORPORATED, LIMA, OHIO

## OBITUARY

**Robert R. Wells,** representative for the western territory of the Hunt-Spiller Manufacturing Corporation, South Boston, Mass., died on February 23, of a heart ailment at his home in Berkeley, Cal. Mr. Wells was born at Topeka, Kan., on February 7, 1885, and during his early career was employed by the Atchison, Topeka & Santa Fe. He subsequently was an inspector at the steel plants in Chicago and then was with the United States Metallic Packing Company previous to March 15. 1923, when he entered the service of the Hunt-Spiller Manufacturing Corporation as a representative in its sales department for the western territory.

**Cornelius G. Sauerberg,** mechanical representative of the Ohio Injector Company of Illinois, Chicago, with headquarters at Castleton-On-Hudson, N. Y., died in Mason City, Iowa, on February 24. He was born on January 13, 1884, and graduated from Iowa State College in 1911. Following his graduation he entered the employ of the Atchison, Topeka & Santa Fe, serving in various capacities in the mechanical department of that railroad until 1919, when he engaged in business for himself in Mason City. In September, 1924, he was employed by the Ohio Injector Company of Illinois as mechanical representative and service engineer, at Castleton-On-Hudson, which position he has held until his death.

**Maurice Alvin Long,** president of the M. A. Long Company, Baltimore, Md., and former assistant to chief engineer of the Baltimore & Ohio, died on February 27, at his home in Baltimore, at the age of 63 years. Mr. Long was born in Middletown, Ohio, on October 25, 1875. He studied architecture, engineering and railroad engineering in the Scranton, Pa., schools. In 1899 he went with the Baltimore & Ohio, serving as architect and assistant on engineering corps. In 1904 he was appointed architect and in February, 1913, was appointed assistant to chief engineer on the Baltimore & Ohio system. Mr. Long later organized the engineering contracting firm of M. A. Long Company, of which he was president at the time of his death.

# Equipment and Supplies

## New Energy Marks Equipment Buying

### Orders for 17 locos., 109 freight and 50 passenger cars recorded; Canada trade up

Domestic equipment manufacturers received orders during February for a total of 17 locomotives, 109 freight cars, and 50 passenger-train cars, as compared with a record of orders placed during January totaling 9 locomotives, 25 freight cars, and no passenger-train cars. This represents a substantial gain in volume for all three categories of equipment. In addition, during the month foreign carriers ordered 12 freight cars. Canadian builders acquired orders for 2,000 freight cars and 16 passenger-train cars, as compared with completely inactive books during the month of January.

The February group of locomotive purchases included orders for 6 steam, 1 gasoline-mechanical and 10 Diesel-electric type. The freight car total included a single order for 100 ballast cars while the passenger-train car order list was made up of a single order for 50 coaches.

The rail market for the month included but a single order for 2,890 tons, this compares with the January total of 65,550 tons.

### Domestic Equipment Orders Reported in Issues of the Railway Age of February, 1938

**LOCOMOTIVES**

| Date | Name of Company | No. | Type | Builder |
|---|---|---|---|---|
| Feb. 5 | Grand Trunk Western | 6 | 4-8-4 | Lima Locomotive Works |
| Feb. 12 | Maine Central | 1 | Gas-Mechanical | Plymouth Loco. Works |
| Feb. 19 | New York, New Haven & Hartford | 10 | Diesel-electric Sw. | American Locomotive Co. |

**FREIGHT CARS**

| | | | | |
|---|---|---|---|---|
| Feb. 19 | Chicago, Burlington & Quincy | 100 | Roger Ballast | American Car & Foundry |
| Feb. 26 | Niagara Smelting Corp. | 1 | Tank | General American |
| Feb. 26 | Shell Chemical Co. | 4 | Tank | General American |
| Feb. 26 | Canfield Tank Line Co. | 4 | Tank | General American |

**PASSENGER-TRAIN CARS**

| | | | | |
|---|---|---|---|---|
| Feb. 19 | New York, New Haven & Harford | 50 | Coach | Pullman-Standard |

## PASSENGER CARS

THE INTERBOROUGH RAPID TRANSIT COMPANY has asked for bids on or about March 22, for the 50 new passenger cars for service on its lines. See *Railway Age* of February 19, page 358.

THE SOUTHERN RAILWAY SYSTEM is renovating and air conditioning certain passenger coaches at an authorized cost of approximately $1,033,000. The program is expected to be completed during the late spring of 1938.

# Financial

ATCHISON, TOPEKA & SANTA FE.—*Abandonment.*—The Atchison, Topeka & Santa Fe has filed an application with the Oklahoma Corporation Commission for permission to abandon nine miles of branch line connecting its main line at Davis, Okla., with Sulphur. The application states that the total loss on this line was $6,816 for 1936 and an average of $9,802 per year for the last five years.

ATLANTIC COAST LINE.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority for the certification and delivery by the corporate trustee under its general unified mortgage, into the treasury of the company, of $1,406,000 of its series A 4½ per cent general unified mortgage bonds.

BALTIMORE & OHIO.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon as main track its 3.7-mile Racoon Valley branch in Preston County, W. Va.

BANGOR & AROOSTOOK.—*Securities.*—The Interstate Commerce Commission, Division 4, has further modified its order of April 1, 1936, so as to permit the sale by this company of $117,000 of its consolidated refunding mortgage four per cent bonds, the proceeds to be used to purchase prior to, or to retire at, maturity a total of $117,000 of St. John River extension first mortgage five per cent bonds and Washburn extension first mortgage five per cent bonds.

BEVIER & SOUTHERN.—*Note.*—This company has asked the Interstate Commerce Commission for authority to issue its promissory note in the amount of $28,304 to the Binkley Mining Company of Missouri.

BOSTON & MAINE.—*Securities.*—This company has applied to the Interstate Commerce Commission for authority to pledge as additional security for a $2,000,000 Reconstruction Finance Corporation loan $1,592,000 of securities now held in the company's treasury.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Equipment Trust Certificates.*—The trustees have applied to the Interstate Commerce Commission for authority to issue and assume liability for $2,235,000 of Series S equipment trust certificates, maturing in 15 annual installments of $149,000 each on April 1, in each of the years from 1939 to 1953. The certificates will bear interest at the rate of 3½ per cent.

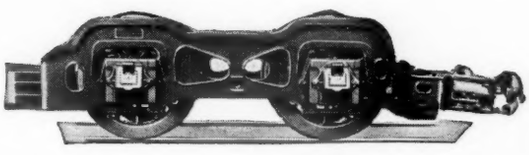
CHICAGO, ROCK ISLAND & PACIFIC.—*Abandonment.*—Examiner R. Romero of the Interstate Commerce Commission, in a proposed report to the commission, has recommended that it authorize the trustees to abandon a branch line extending from Evans, Iowa, to Knoxville, 20.4 miles.

CHICAGO, ROCK ISLAND & PACIFIC.—*Reorganization.*—The Interstate Commerce Commission, Division 4, has recessed hear-

*Continued on next left-hand page*

# MINIMUM DRIVING-AXLE LOADS without Sacrifice of STARTING CAPACITY

With minimum weight on drivers the modern locomotive can handle its full capacity at high road speeds. » » » For starting its train the Booster provides the added power needed and then cuts out. » » » Minimum weight on drivers insures lower track maintenance costs and higher safety factors. » » » Such a locomotive costs less to operate and to maintain and has higher efficiency throughout its entire speed range.



**FRANKLIN RAILWAY SUPPLY COMPANY, INC.**

NEW YORK CHICAGO MONTREAL

ings in the reorganization of this company until June 28. Witnesses at the February 28 hearing were W. H. Burns, general auditor of the Rock Island, and T. A. Hamilton, Reconstruction Finance Corporation railroad expert. Attorneys for the principal bondholder groups expressed the belief that they will be able to conduct negotiations for a plan acceptable to all groups.

ILLINOIS CENTRAL.—*Abandonment.*—The Interstate Commerce Commission, Division 4, has authorized this company to abandon the operation and the Chicago, St. Louis & New Orleans to abandon a line extending southerly from milepost 4 to the end of the line at milepost 6.21, 2.2 miles, all in Vanderburg County, Ind. and Henderson County, Ky.

NELSON & ALBEMARLE. — *Bonds.*—The Interstate Commerce Commission, Division 4, has authorized this company to extend from January 1, 1938, to January 1, 1943, the date of maturity of $100,000 of refunding and improvement mortgage 20-year six per cent gold bonds, to bear interest during the extended period at the rate of three per cent.

NEW YORK CENTRAL.—*Merger.*—Hearings were opened February 28, before Interstate Commerce Commission Examiner R. R. Molster on applications of the Cleveland, Cincinnati, Chicago & St. Louis and the Toledo & Ohio Central to merge a number of subsidiary companies. B. S. Voorhees, engineering assistant to the vice-president of the New York Central, appeared as the first witness.

NEW YORK, NEW HAVEN & HARTFORD.—*Reorganization.*—A protective committee for holders of bonds of the Housatonic have applied to the Interstate Commerce Commission for authority to solicit authorizations and represent the holders of five per cent 50 year consolidated mortgage gold bonds in the reorganization proceedings of this company.

NEW YORK, NEW HAVEN & HARTFORD.—*Reorganization.*—Final hearings in the reorganization of this company were held before Interstate Commerce Commission Examiner H. H. Wilkinson on plans submitted by the Hartford & Connecticut Western and the Providence, Warren & Bristol. The plans call for a separate treatment of these roads' securities in the reorganization of the New Haven. The next step in the reorganization will be the drafting of a proposed report by the Bureau of Finance of the commission.

ST. LOUIS-SAN FRANCISCO.—*Abandonment.*—The abandonment of 40.62 miles of branch lines of the St. Louis-San Francisco in southern Missouri was recommended to the federal district court of St. Louis on February 15 by its trustees. The trustees sought authority to apply to the Interstate Commerce Commission for permission to abandon and dismantle that part of the Hunter branch extending from Williamsville, Wayne county, to Hunter, Carter county, 21.3 miles; that part of the Current River branch, extending from Hunter to Chicopee, Carter county, 13.2 miles; and the Grandin branch, extending from Hunter to Grandin, Carter county, 6.12 miles. The annual deficit for these lines has ranged from $36,669 to $47,354 a year for the last five years.

ST. LOUIS SOUTHWESTERN.—*Payment of bonds in gold.*—A so-called gold clause under which holders of $21,638,000 in bonds of the St. Louis Southwestern demanded payment in Dutch guilders has been held invalid by the federal district court at St. Louis. The indenture under which the bonds were issued contained an elective clause giving bondholders the choice of collecting in American currency or that of several specified foreign countries. When payment became due December 12, 1935, the bondholders demanded payment in Dutch guilders, a gold coin. Guilders equivalent to the $21,638,000 value of the bonds at the time of issuance are now worth $37,335,525 following devaluation of the American dollar. The railroad resisted payment in gold guilders, citing the joint congressional resolution of June 5, 1933, abrogating gold payments. The district court at St. Louis, which took the case under advisement last November, held that the congressional resolution is applicable in this case, that the gold clause in the bonds is invalid and that the Guaranty Trust Company of New York is entitled to only $21,638,000 in the currency of the United States.

The case before the district court at St. Louis is the second on which the federal courts have passed as to the guilder payment provision in Cotton Belt bonds. In the first case a foreign corporation, the Anglo-Continental Treuhand, was the claimant, and the district court in New York decided that the claimant was entitled to collect the guilder value. This ruling was upheld by the United States circuit court of appeals of the second circuit. The supreme court in April, 1936, refused to interfere with the circuit court's action.

VISALIA ELECTRIC.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon the operation of 5.6 miles of track of the Southern Pacific in San Jose, Calif., and 2.6 miles of track of the San Jose, also in the same city.

## Dividends Declared

Alabama & Vicksburg.—Capital, 3 per cent, semi-annually, payable April 1 to holders of record March 8.

Lackawanna R. R. of New Jersey. — $1.00, quarterly, payable April 1 to holders of record March 4.

New York, Lackawanna & Western. — $1.25, payable April 1 to holders of record March 11.

Union Pacific.—$1.50; Preferred, $2.00, semi-annually, both payable April 1 to holders of record March 4.

Vicksburg, Shreveport & Pacific.—Preferred, 2½ per cent, semi-annually; common, 2½ per cent, semi-annually, both payable April 1 to holders of record March 8.

## Average Prices of Stocks and Bonds

| | Mar. 1 | Last week | Last year |
|---|---|---|---|
| Average price of 20 representative railway stocks.. | 30.85 | 31.19 | 58.10 |
| Average price of 20 representative railway bonds.. | 63.79 | 63.91 | 84.23 |

# Railway Officers

## FINANCIAL, LEGAL AND ACCOUNTING

**Henry E. Cain,** chief claim agent of the eastern region of the Pennsylvania, with headquarters at Philadelphia, Pa., has retired from active duty, effective February 28. Mr. Cain was born at Harrington, Del., and entered railroad service on August 8, 1888, as telegraph operator for the Pennsylvania at Laurel, Del., later serving as passenger and baggage agent at Dover, Del., where for two years he was clerk of the Delaware Senate. In 1903 he was transferred to the railroad's legal department at Philadelphia, and upon establishment of the Bureau of Claims in 1906, was appointed special agent, and the following year claim agent. Mr. Cain became district claim agent in Philadelphia in 1920, and chief claim agent of the eastern region in 1924.

## MECHANICAL

**R. V. Blocker,** assistant superintendent of motive power of the Erie, with headquarters at Cleveland, Ohio, has been promoted to superintendent of motive power to succeed **Charles James,** retired. **W. E. Harmison,** master mechanic, with headquarters at Hornell, N. Y., has been promoted to assistant to superintendent of motive power, with the same headquarters, and has been succeeded by **Edward Pool,** master mechanic at Marion, Ohio, who in turn has been succeeded by **C. J. Gerbes. C. W. Ecenbarger,** general foreman at Port Jervis, N. Y., has been promoted to master mechanic at Avoca, Pa., to succeed Mr. Gerbes and has been succeeded by **R. M. Wilson. B. E. Jones,** master mechanic of motor power equipment at Hornell, has been appointed master mechanic at Buffalo, N. Y., to succeed **William Moore,** who has been appointed shop superintendent at Hornell, and has been succeeded by **Chester K. James.**

**P. H. Mitchell,** general car inspector of the Delaware, Lackawanna & Western, with headquarters at Scranton, Pa., has been promoted to master car builder, with the same headquarters, succeeding **Edward M. Jenkins,** who has retired at his own request. Mr. Jenkins was born on June 28, 1886, at Vermont, Ill., and was educated in the public schools and the University of Illinois. From July, 1909, to September, 1911, Mr. Jenkins served as special apprentice for the Baldwin Locomotive Works and from the latter date until July, 1926, successively, as draftsman on the Baltimore & Ohio, chief draftsman for the Seaboard Air Line, mechanical engineer for the Virginian and special mechanical inspector for the Chesapeake & Ohio. In July, 1926, Mr. Jenkins was appointed chief draftsman, car department, Delaware, Lackawanna & Western and in May, 1927, became master car builder at Scranton, the position he held until his retirement.

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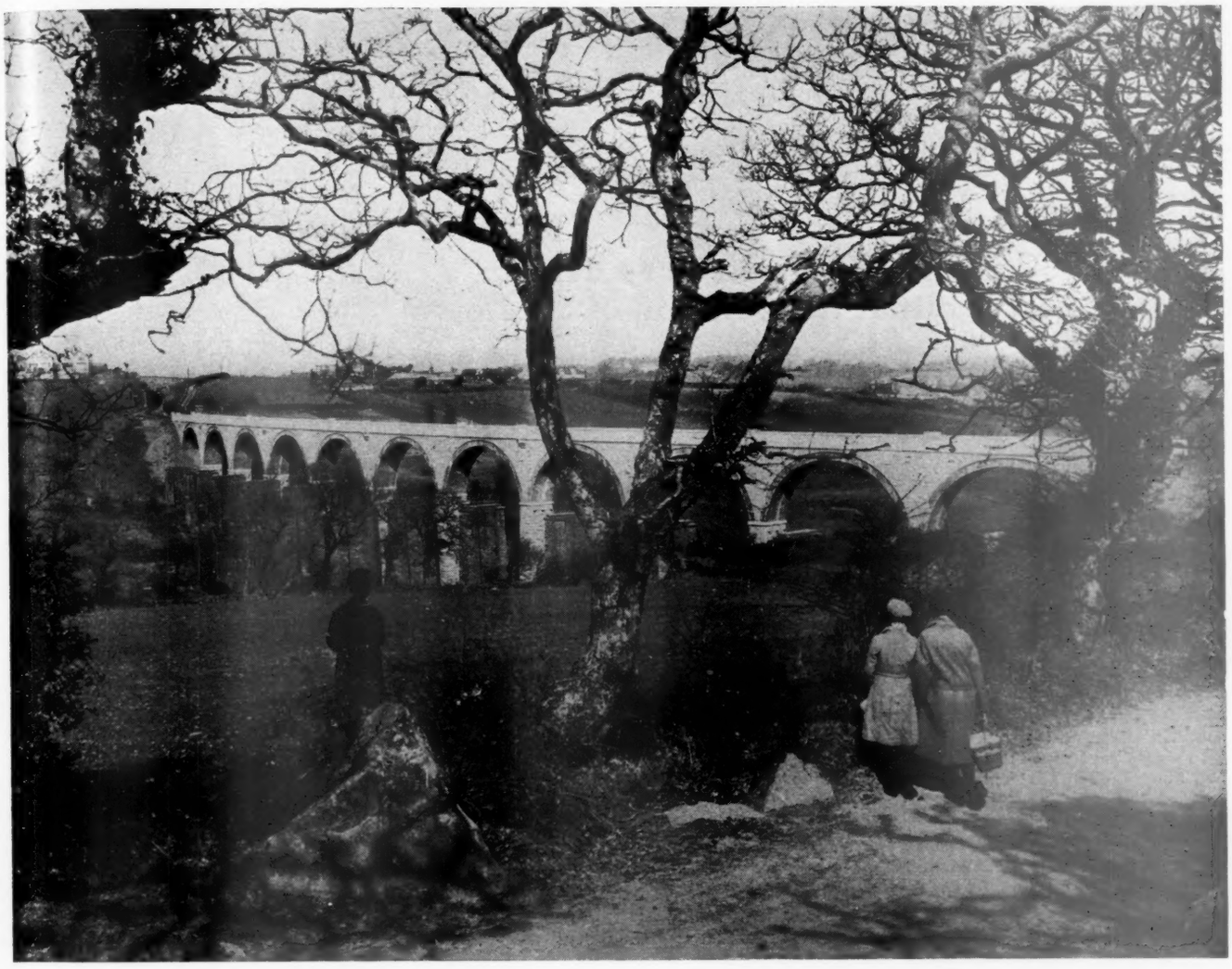
NO. 54 OF A SERIES OF FAMOUS ARCHES OF THE WORLD



## COLLEGE WOOD VIADUCT

### ENGLAND

Masonry abutments, piers and spandrel walls distinguish the College Wood Viaduct of the Great Western Railway. This structure with rail level 100 feet above ground is 890 feet long with eleven openings of 68 feet span. The semi-circular arches are formed of eight brick rings. « « « The Security Sectional Arch was among the first efforts to improve economy and increase the capacity of the steam locomotive. While the fundamental design is unchanged, it has been continuously developed with the progress in locomotive design and is today an essential factor in the operation of modern steam motive power.

* * *

**HARBISON-WALKER REFRACTORIES CO.**

***Refractory Specialists***

**AMERICAN ARCH CO.**
**INCORPORATED**
60 EAST 42nd STREET, NEW YORK, N. Y.
***Locomotive Combustion Specialists***

**Raymond V. Blocker,** assistant superintendent of motive power of the Erie, has been promoted to superintendent of motive power, with headquarters as before at Cleveland, Ohio, succeeding **Charles James,** who has retired effective March 1. Mr. James was born in Elkhart, Ind. Before coming to the Erie as a machinist in 1890 he had spent ten years in the Elkhart shops of the Lake Shore & Michigan Southern (now part of the New York Central). On the Erie he was advanced to roundhouse foreman at Huntington, Ind., and was later made general foreman at Chicago. After serving as master mechanic at Avon, N. Y., Galion, Ohio, Port Jervis, N. Y., and Jersey City, N. J., he became district mechanical superintendent of the Western district, later being transferred to the Hornell region. He has been superintendent of motive power since November 1, 1927.

# Watson Succeeds Miller as President of Terminal Association of St. Louis

P. J. Watson, Jr., president of the Kansas City Terminal Railway Company, Kansas City, Mo., has been elected president of the Terminal Railroad Association of St. Louis, to succeed Henry Miller, who will retire on April 1. Mr. Watson was born in Dunkirk, N. Y., in 1886 and entered railway service as a rodman on the Pennsylvania in February, 1903. Between that time and June, 1908, he served in the engineering department of the Pennsylvania and also finished his engineering education at Princeton. He then entered the service of the Missouri Pacific at St. Louis as a draftsman and later became an inspector on construction work. He returned to the Pennsylvania in January, 1909, as an assistant engineer, which position he held until June of the same year, when he entered the employ of the Wheeling & Lake Erie as an instrumentman. Later he became assistant engineer and in July, 1912, entered the employ of the Alton as assistant engineer, subsequently being promoted to resident engineer in charge of the construction of new shops at Bloomington, Ill. In April, 1917, he entered the Army, and was commissioned captain, being later promoted to major in command of the First Battalion of 23rd Engineers. He was decorated with the Croix de Guerre and was honorably discharged in June, 1919, after 26 months of service. He reentered railway service in the engineering department of the Alton, where he remained until December, 1919, when he became construction superintendent of the C. R. Cummins Company, Cleveland, Ohio.

In August, 1921, he returned to railroad service as superintendent of the Kansas City Terminal Railway Company. In January, 1930, he was promoted to general superintendent and in December, 1932, was elected president, which position he has held until his recent selection as Mr. Miller's successor.

Henry Miller was born in Hannibal, Mo., on February 24, 1863, and entered railway service as a boiler maker's apprentice on the Hannibal & St. Joseph (now a part of the Chicago, Burlington & Quincy) in 1878. In the following year he became a switchman and in 1883 was promoted to yardmaster on the same road. From 1890 to 1892 he served as trainmaster on the St. Louis, Keokuk & Northwestern (now a part of the Burlington) and on the latter date was promoted to assistant superintendent of that road and also of the Chicago, Burlington & Kansas City (now a part of the Burlington). Later he was appointed superintendent of the St. Louis, Keokuk & Northwestern and the Chicago, Burlington & Kansas City and from 1903 to 1905 served as general superintendent of these roads and also of the Kansas City, St. Joseph & Council Bluff (now a part of the Burlington). He was appointed general superintendent of the Missouri district of the Burlington in 1904, and resigned in 1905 to become general manager of the Wabash. Later he was elected vice-president of that road and in 1915 resigned as general manager, but continued in the capacity of vice-president and director. In 1915 he was elected president and auditor of the Missouri & Illinois Bridge & Belt, with headquarters at St. Louis. During the war he was appointed operations expert on the railroad commission sent to Russia by the United States government to aid that country in improving its war transport service. Following his return from Russia he was elected president of the Title Guaranty Trust Company of St. Louis, and in April, 1920, he was elected president of the Terminal Railroad Association of St. Louis, which position he has held until his retirement.

P. J. Watson, Jr.

Henry Miller

**E. J. Dean,** general New England agent of the Erie at Boston, Mass., has been appointed assistant to vice-president at Cleveland, Ohio.

## TRAFFIC

**M. H. York,** traveling passenger agent of the Louisville & Nashville, has been promoted to district passenger agent, with headquarters at Knoxville, Tenn., succeeding **D. S. Chandler,** deceased.

**Wallace A. McGowan,** assistant general agent of the New York, Chicago & St. Louis at Kansas City, Mo., retired on March 1. He had been with the Nickel Plate since 1920.

**E. L. Cardle,** general western freight agent of the Canadian Pacific at Chicago, has had his title changed, effective March 1, to general freight agent. He will continue to make his headquarters at Chicago.

**George W. Madsen,** general agent of the Erie, with headquarters at New Haven, Conn., has been appointed general New England agent, with headquarters at Boston, Mass., succeeding **E. J. Dean,** who has been promoted to assistant to vice-president at Cleveland, Ohio. **Fred C. Lotz** of the Erie's traffic department in New York, has been appointed general agent at New Haven, to succeed Mr. Madsen.

**J. M. McDermott** has been appointed general agent for the Chicago, Burlington & Quincy at New Orleans, La., to succeed **A. R. Brown,** who has been transferred to Seattle, Wash., to replace **O. G. Hagemann,** who has been transferred to Portland, Ore. Mr. Hagemann succeeds **M. B. Baker,** who has been transferred as general agent to San Francisco, Cal., to relieve **J. W. Monahan,** who is retiring after 37 years with this company. **A. L. Johnson** has been appointed general agent at Des Moines, Iowa, to succeed **A. M. Hixson,** who is retiring after 46 years of service with this company.

**James J. Grogan,** assistant freight traffic manager of the Atchison, Topeka & Santa Fe, with headquarters at Chicago, has been promoted to freight traffic manager, with the same headquarters, to succeed **Paul P. Hastings,** whose appointment as vice-president in charge of traffic was reported in the *Railway Age* of January 1. **Robert M. Hitshew,** general freight agent at Chicago, has been appointed assistant freight traffic manager at that point to succeed Mr. Grogan, and has been replaced by **Clark Davis,** assistant general freight agent at Topeka, Kan.

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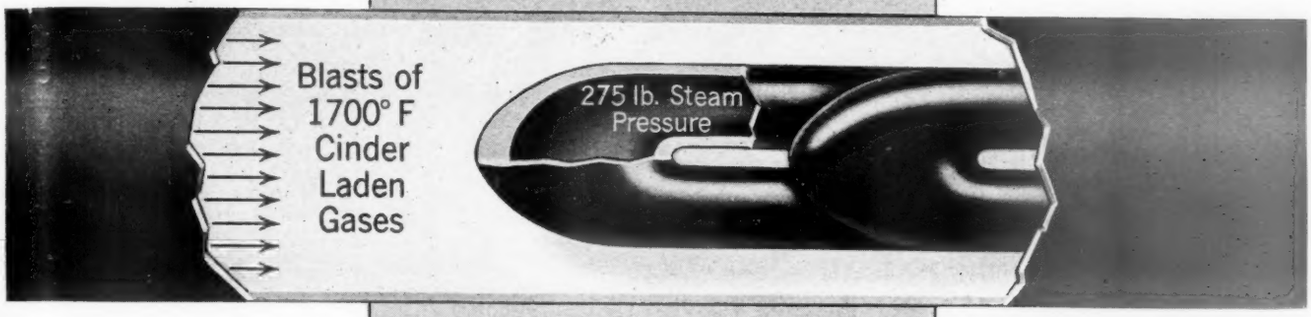
# *Present Day Operating Conditions...*




***demand*** **DEPENDABLE superheater units.**

**When Superheater units live their full mileage life . . . renew their *dependability* by the Elesco Re-manufacturing Process —on a mileage basis the cost is less than one-half cent a mile.**

ELESCO

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# THE SUPERHEATER COMPANY

Representative of AMERICAN THROTTLE COMPANY, INC.
60 East 42nd Street, NEW YORK 122 S. Michigan Avenue, CHICAGO
Canada: THE SUPERHEATER COMPANY, LTD., MONTREAL

Superheaters • Exhaust Steam Injectors • Feed Water Heaters • American Throttles • Pyrometers • Steam Dryers

**Warren H. Turner,** division freight agent at Kansas City, Mo., has been promoted to assistant to the vice-president in charge of traffic at Chicago. **E. M. Fogarty,** division freight agent at Chicago, has been appointed assistant general freight agent at Topeka, succeeding Mr. Davis.

**Roland C. Sanders,** assistant general freight agent on the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Chicago, has been promoted to general freight agent of the Western lines, with headquarters at Seattle, Wash., to succeed **O. P. Kellogg,** deceased. Mr. Sanders has been in the service of the Milwaukee continuously for 32 years. He was born on January 11, 1890, in Kansas and first entered the service of this company on January 2, 1906, as an office boy at Chicago. After serving in various clerical positions he was appointed chief of the tariff bureau at Chicago on March 1, 1920, and since May 24 of the same year he had served as assistant general freight agent at Chicago.

**Roland C. Sanders**

**Don Y. Smith,** assistant freight traffic manager of the Central of New Jersey, with headquarters at New York, has been appointed freight traffic manager, as reported in the *Railway Age* of February 26. Mr. Smith entered the service of the Southern Pacific at New York as clerk in July, 1910, and was promoted to rate clerk in 1911. In October, 1912, he went with the Lehigh Valley as rate and claim clerk in the office of the general eastern freight agent, being appointed soliciting freight agent in June, 1914. He was promoted to chief clerk to general freight agent in 1916 and was appointed soliciting freight agent to solicit grain shipments on the floor of the New York Produce Exchange in 1917. On January 1, 1918, Mr. Smith was furloughed to the American Railway Association and assigned to the freight traffic control committee at New York, serving as assistant chief clerk. He returned to the service of the Lehigh Valley on March 1, 1919, resigning on May 1, 1919, to become traffic manager of the Pacific Trading Corporation, New York. On May 1, 1920, he became general traffic manager of the Congoleum Company at Philadelphia, Pa. Mr. Smith entered the employ of the Reading on May 1, 1922, as traveling freight agent and on November 1, 1926, was promoted to freight traffic representative at New York. On May 16, 1927, he was appointed assistant general agent; on May 1, 1928, general agent in charge of the New York office; on April 15, 1934, general freight agent of the Reading and Central of New Jersey at New York. Mr. Smith was appointed assistant freight traffic manager of the Central of New Jersey on August 16, 1935, the position he held until his recent appointment as freight traffic manager, effective February 18.

**Don Y. Smith**

**Albert S. Huntington,** who has been appointed assistant freight traffic manager of the Central of New Jersey, at New York, as reported in the *Railway Age* of February 26, was born on July 16, 1898, at Prescott, Ont., Canada. He entered railroad service with the Canadian National at Sherbrooke, Que., on August 18, 1918. In 1923 he entered the service of the Lehigh Valley and went with the Erie in 1925. In 1927 he entered the service of the Central of New Jersey as rate clerk and on January 1, 1930, was appointed commerce assistant. Mr. Huntington was appointed assistant general freight agent on March 1, 1935, the position he held until his recent appointment as assistant freight traffic manager, effective February 18.

**Albert S. Huntington**

## ENGINEERING AND SIGNALING

**M. H. Brown** has been appointed superintendent maintenance of way and structures of the Butte, Anaconda & Pacific, with headquarters at Anaconda, Mont., to succeed **T. J. McCarvel,** who has retired after 38 years of service with this company. Mr. Brown goes to the B. A. & P. from the Union Pacific, where he has been connected with the engineering department for many years.

## OPERATING

**G. H. Jedele,** assistant division superintendent of the New York Central, with headquarters at Cleveland, Ohio, has been promoted to superintendent of the Cleveland division, with the same headquarters, to succeed **C. M. Williams,** retired, and has been succeeded by **E. G. Wright.**

**H. O. McAbee,** acting manager, dining car and commissary department of the Baltimore & Ohio, with headquarters at Baltimore, Md., has been appointed manager, dining car and commissary department, with the same headquarters, succeeding **F. A. Stine,** who has retired on account of ill health.

## SPECIAL

**William J. Coughtry,** recorder for the Delaware & Hudson, with headquarters at New York, has retired effective March 1, after more than 48 years of service.

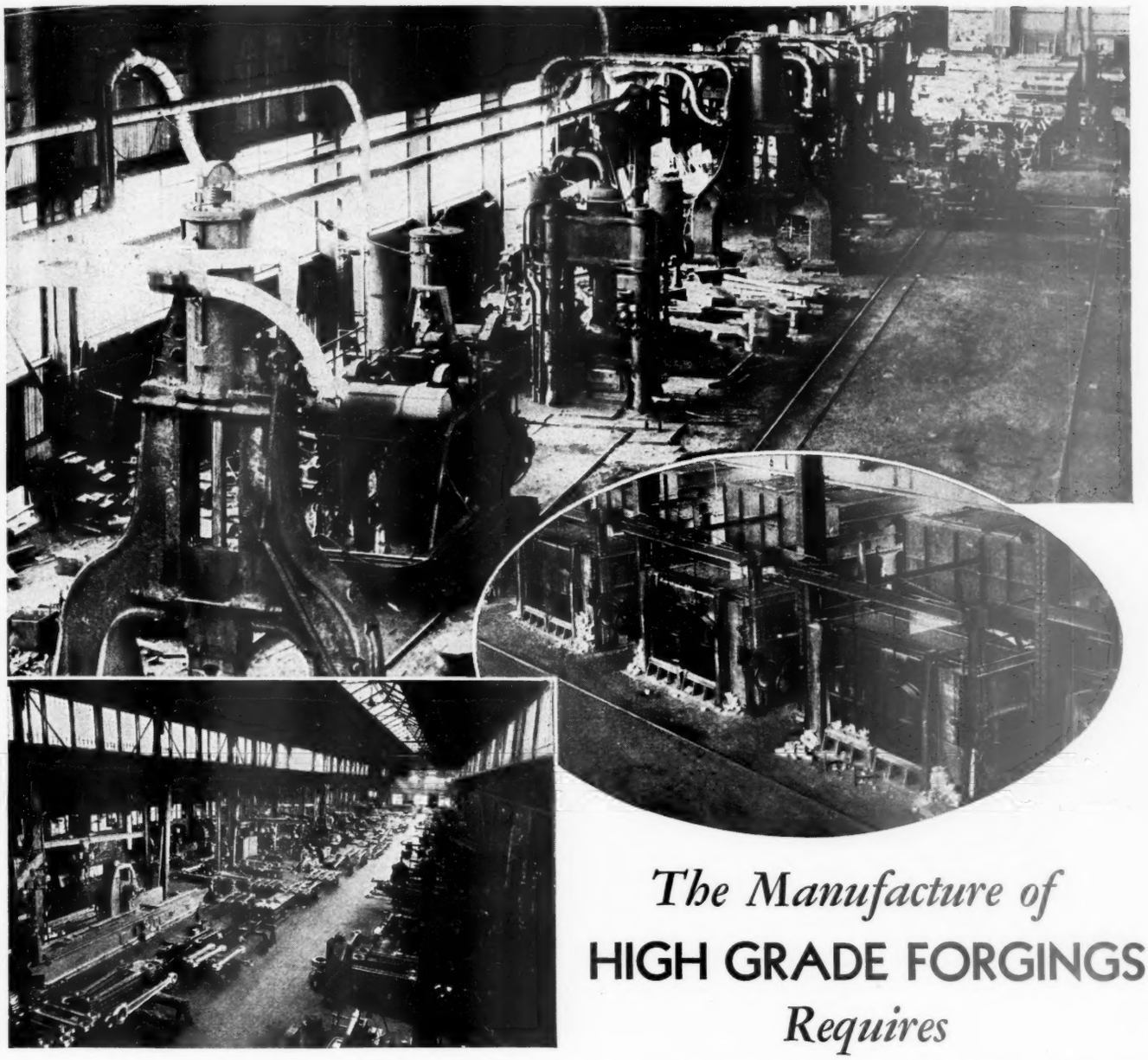
## OBITUARY

**Jacob C. Brekenfeld,** system shop supervisor of the St. Louis-San Francisco, with headquarters at Springfield, Mo., died at Pensacola, Fla., on February 13.

**George Tozzer,** who retired as purchasing agent of the Big Four in 1917, died in Cincinnati, Ohio, January 22, at the age of 87. Prior to becoming purchasing agent of the Cleveland, Cincinnati, Chicago & St. Louis in 1898, Mr. Tozzer was assistant purchasing agent of that road. Previously he had served as superintendent of stores on the Baltimore & Ohio at Baltimore, and as purchasing agent of the Cleveland, Indianapolis, St. Louis & Chicago, which later became a part of the Big Four.

**Edward C. Twells,** superintendent of stations and transfers of the Western region of the Pennsylvania, with headquarters at Chicago, died at his home there on February 28 at the age of 62. Born in Logansport, Ind., Mr. Twells began his long service with the Pennsylvania there as an office boy on April 29, 1892. After several advancements he was made freight agent at Marion, Ind., in 1913. He was promoted to supervising agent of the Logansport division in 1918, and was made supervisor of stations and transfers at Chicago in 1921. He had been superintendent of stations and transfers for the Western region since 1928.

*Table of Freight Operating Statistics begins on next left-hand page*



*The Manufacture of*

## HIGH GRADE FORGINGS

*Requires*

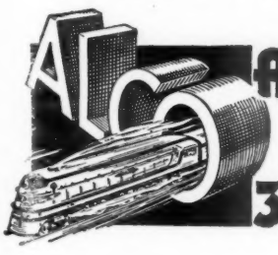
# LARGE CAPITAL INVESTMENTS

THERE should be little or no need for any railway to make large capital investments in shops, modern equipment and new precision machinery to manufacture forgings.

Because—First, if a railroad should make any such investment their manufacturing unit costs would be prohibitively high because output would be relatively low.

Secondly, such capital investments are unnecessary because Alco shops which are manned by a thoroughly experienced personnel are already fully equipped, always kept at top-notch efficiency throughout, modern in every respect with sufficient output to keep costs relatively low.

As a result Alco's complete forging service not only assures the highest quality forgings but enables railroads to use available capital for more productive purposes.



**AMERICAN LOCOMOTIVE COMPANY**

**30 CHURCH STREET·NEW YORK·N·Y**

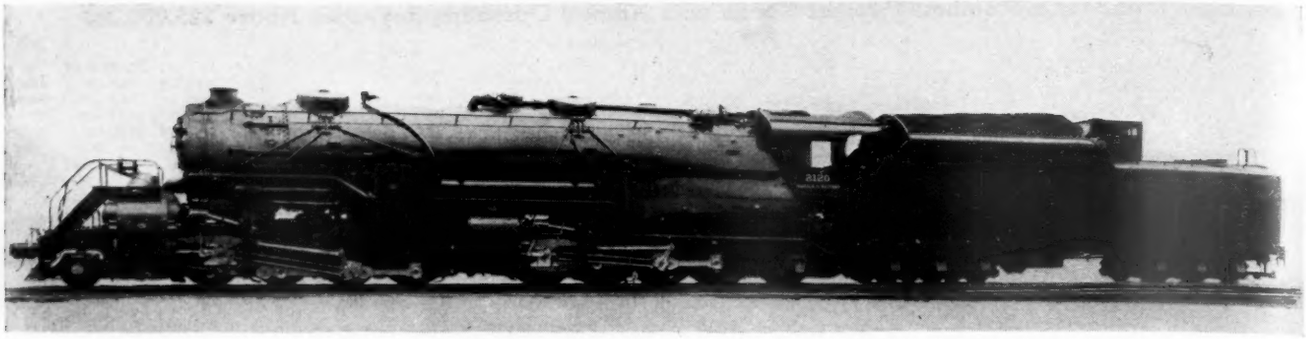
## Freight Operating Statistics of Large Steam Railways—Selected Items for the Month of December,

| Region, road, and year | Miles of road operated | Locomotive-miles: Train-miles | Locomotive-miles: Principal and helper | Locomotive-miles: Light | Car-miles: Loaded (*thousands*) | Car-miles: Per cent loaded | Ton-miles (*thousands*): Gross, excluding locomotives and tenders | Ton-miles (*thousands*): Net, revenue and non-revenue | Number of road locomotives on line: Serviceable: Not stored | Serviceable: Stored | Unserviceable | Per cent unserviceable |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **New England Region:** | | | | | | | | | | | | |
| Boston & Albany.....1937 | 374 | 127,850 | 132,291 | 8,533 | 2,537 | 63.8 | 146,163 | 48,553 | 57 | 6 | 28 | 30.8 |
| 1936 | 373 | 156,497 | 161,463 | 10,763 | 3,407 | 66.2 | 185,932 | 64,854 | 66 | 5 | 21 | 22.8 |
| Boston & Maine.....1937 | 1,941 | 253,067 | 277,224 | 21,756 | 8,173 | 66.2 | 468,016 | 168,136 | 123 | 5 | 116 | 47.5 |
| 1936 | 1,957 | 298,085 | 334,674 | 27,670 | 10,504 | 68.5 | 587,428 | 221,849 | 132 | .. | 137 | 50.9 |
| N. Y., New Hav. & Hartf..1937 | 2,006 | 313,615 | 389,037 | 26,589 | 9,725 | 62.7 | 550,123 | 196,503 | 171 | 30 | 65 | 25.2 |
| 1936 | 2,010 | 370,028 | 458,887 | 24,581 | 12,457 | 65.6 | 691,617 | 260,516 | 205 | .. | 75 | 31.2 |
| **Great Lakes Region:** | | | | | | | | | | | | |
| Delaware & Hudson.....1937 | 830 | 225,018 | 296,648 | 31,183 | 7,169 | 59.6 | 469,095 | 214,701 | 119 | 112 | 26 | 10.1 |
| 1936 | 831 | 247,027 | 337,065 | 39,465 | 8,726 | 65.4 | 549,644 | 268,346 | 103 | 128 | 35 | 13.2 |
| Del., Lack. & Western.....1937 | 983 | 357,481 | 397,625 | 53,872 | 10,926 | 63.2 | 669,459 | 256,349 | 131 | 8 | 83 | 37.4 |
| 1936 | 983 | 399,378 | 447,648 | 59,238 | 13,207 | 67.5 | 778,629 | 312,172 | 145 | 1 | 88 | 37.6 |
| Erie (incl. Chi. & Erie)...1937 | 2,275 | 633,319 | 669,988 | 39,681 | 25,680 | 62.3 | 1,598,773 | 595,934 | 240 | 37 | 196 | 41.4 |
| 1936 | 2,284 | 743,003 | 788,497 | 44,516 | 31,858 | 65.5 | 1,949,856 | 781,065 | 241 | 15 | 215 | 45.6 |
| Grand Trunk We tern.....1937 | 1,027 | 248,109 | 252,449 | 3,026 | 6,004 | 59.1 | 380,975 | 130,761 | 77 | .. | 44 | 36.4 |
| 1936 | 1,027 | 305,196 | 312,957 | 4,633 | 8,250 | 62.1 | 500,703 | 173,928 | 81 | .. | 56 | 40.9 |
| Lehigh Valley .....1937 | 1,289 | 328,796 | 360,042 | 47,103 | 12,053 | 62.6 | 780,134 | 322,355 | 132 | 7 | 131 | 48.5 |
| 1936 | 1,303 | 414,004 | 444,793 | 53,412 | 14,347 | 65.6 | 904,064 | 388,947 | 149 | 7 | 126 | 44.7 |
| New York Central.....1937 | 10,649 | 2,635,315 | 2,792,142 | 158,932 | 80,537 | 57.1 | 5,573,957 | 2,232,096 | 921 | 216 | 339 | 23.0 |
| 1936 | 10,793 | 3,137,338 | 3,320,528 | 206,552 | 101,908 | 58.5 | 6,813,950 | 2,839,531 | 963 | 73 | 418 | 28.7 |
| N. Y., Chicago & St. Louis.1937 | 1,672 | 476,786 | 485,875 | 6,810 | 15,421 | 60.3 | 970,177 | 351,892 | 156 | 18 | 20 | 10.3 |
| 1936 | 1,672 | 552,631 | 557,059 | 8,374 | 18,491 | 63.8 | 1,130,863 | 440,787 | 171 | 1 | 22 | 11.3 |
| Pere Marquette .....1937 | 2,081 | 342,301 | 346,686 | 6,244 | 8,710 | 57.9 | 575,399 | 204,744 | 107 | 16 | 39 | 24.1 |
| 1936 | 2,081 | 434,403 | 450,276 | 7,656 | 11,291 | 59.8 | 729,167 | 269,422 | 122 | .. | 25 | 17.0 |
| Pittsburgh & Lake Erie....1937 | 234 | 52,333 | 53,624 | 30 | 2,059 | 57.6 | 173,330 | 92,304 | 25 | 23 | 23 | 32.4 |
| 1936 | 234 | 97,711 | 100,756 | 17 | 3,560 | 58.0 | 302,487 | 164,573 | 31 | 3 | 30 | 46.9 |
| Wabash .....1937 | 2,421 | 570,033 | 580,953 | 11,526 | 16,579 | 61.4 | 1,025,406 | 357,361 | 146 | 21 | 123 | 42.4 |
| 1936 | 2,434 | 656,936 | 673,643 | 15,433 | 19,855 | 64.1 | 1,182,398 | 420,657 | 141 | 31 | 132 | 43.4 |
| **Central Eastern Region:** | | | | | | | | | | | | |
| Baltimore & Ohio.....1937 | 6,326 | 1,352,054 | 1,658,813 | 173,667 | 36,734 | 58.7 | 2,601,408 | 1,132,509 | 711 | 94 | 488 | 37.7 |
| 1936 | 6,351 | 1,633,697 | 2,008,610 | 221,636 | 47,177 | 61.5 | 3,314,919 | 1,526,676 | 688 | 74 | 540 | 41.5 |
| Central of New Jersey.....1937 | 678 | 154,269 | 173,593 | 34,307 | 4,679 | 57.5 | 341,758 | 161,263 | 82 | 6 | 68 | 43.6 |
| 1936 | 681 | 164,056 | 183,745 | 37,412 | 5,320 | 60.3 | 371,229 | 177,277 | 60 | 12 | 75 | 51.0 |
| Chicago & Eastern Illinois..1937 | 927 | 179,535 | 180,358 | 2,982 | 4,201 | 60.0 | 291,126 | 125,351 | 55 | .. | 49 | 47.1 |
| 1936 | 931 | 194,779 | 195,783 | 3,122 | 5,166 | 63.9 | 342,931 | 152,551 | 62 | .. | 45 | 42.1 |
| Elgin, Joliet & Eastern.....1937 | 435 | 90,601 | 92,373 | 1,405 | 1,880 | 56.2 | 150,600 | 71,526 | 55 | 3 | 25 | 30.1 |
| 1936 | 435 | 117,899 | 120,605 | 2,339 | 2,901 | 60.3 | 231,501 | 118,322 | 60 | .. | 24 | 28.6 |
| Long Island .....1937 | 390 | 31,726 | 31,884 | 15,856 | 266 | 49.8 | 21,270 | 8,179 | 36 | 8 | 5 | 10.2 |
| 1936 | 393 | 31,039 | 31,546 | 16,949 | 275 | 49.5 | 21,978 | 8,478 | 39 | .. | 11 | 22.0 |
| Pennsylvania System .....1937 | 10,008 | 2,605,704 | 3,029,113 | 340,325 | 87,901 | 59.1 | 6,096,047 | 2,623,519 | 1,212 | 465 | 636 | 27.5 |
| 1936 | 10,031 | 3,346,307 | 3,837,729 | 442,791 | 113,311 | 60.9 | 7,872,023 | 3,540,226 | 1,555 | 126 | 669 | 28.5 |
| Reading .....1937 | 1,445 | 410,456 | 451,234 | 50,538 | 10,421 | 57.0 | 806,982 | 381,920 | 208 | 19 | 103 | 31.2 |
| 1936 | 1,449 | 486,987 | 530,273 | 60,486 | 13,436 | 60.8 | 1,011,760 | 494,050 | 212 | 44 | 82 | 24.3 |
| **Pocahontas Region:** | | | | | | | | | | | | |
| Chesapeake & Ohio.....1937 | 3,049 | 789,515 | 828,281 | 34,780 | 30,606 | 54.3 | 2,603,957 | 1,390,680 | 388 | 68 | 96 | 17.4 |
| 1936 | 3,050 | 911,765 | 966,278 | 46,196 | 38,567 | 55.0 | 3,296,662 | 1,778,431 | 447 | 22 | 87 | 15.6 |
| Norfolk & Western.....1937 | 2,178 | 607,975 | 631,360 | 35,247 | 22,510 | 58.0 | 1,829,283 | 964,969 | 297 | 46 | 21 | 5.8 |
| 1936 | 2,183 | 726,351 | 775,155 | 41,895 | 28,718 | 58.1 | 2,454,189 | 1,317,963 | 275 | 56 | 27 | 7.5 |
| **Southern Region:** | | | | | | | | | | | | |
| Atlantic Coast Line.....1937 | 5,079 | 603,939 | 607,150 | 8,243 | 12,880 | 58.8 | 743,797 | 254,909 | 231 | 21 | 107 | 29.8 |
| 1936 | 5,078 | 674,424 | 677,710 | 9,504 | 13,863 | 58.1 | 789,405 | 256,908 | 237 | 18 | 105 | 29.2 |
| Central of Georgia.....1937 | 1,886 | 232,558 | 233,833 | 3,223 | 4,489 | 64.8 | 268,372 | 100,737 | 103 | .. | 20 | 16.3 |
| 1936 | 1,886 | 274,377 | 276,776 | 3,859 | 5,798 | 69.4 | 325,757 | 127,425 | 90 | .. | 29 | 24.4 |
| Illinois Central (incl. Y. 1937 | 6,541 | 1,465,884 | 1,480,809 | 28,682 | 35,846 | 57.1 | 2,540,351 | 1,054,002 | 654 | 22 | 177 | 20.8 |
| & M. V.).....1936 | 6,556 | 1,780,680 | 1,794,110 | 34,340 | 41,624 | 61.6 | 2,777,677 | 1,169,798 | 672 | 9 | 194 | 22.2 |
| Louisville & Nashville.....1937 | 4,928 | 1,105,951 | 1,179,425 | 33,301 | 22,792 | 57.3 | 1,666,117 | 788,076 | 379 | 23 | 153 | 27.6 |
| 1936 | 4,942 | 1,267,332 | 1,375,149 | 36,925 | 28,667 | 58.9 | 2,073,512 | 997,042 | 380 | 1 | 185 | 32.7 |
| Seaboard Air Line.....1937 | 4,305 | 519,250 | 534,199 | 4,708 | 12,855 | 61.8 | 789,616 | 286,611 | 228 | 17 | 58 | 19.1 |
| 1936 | 4,295 | 556,329 | 577,876 | 4,631 | 14,221 | 63.6 | 848,272 | 303,783 | 251 | 3 | 58 | 18.6 |
| Southern .....1937 | 6,570 | 1,202,476 | 1,218,014 | 17,560 | 24,192 | 61.2 | 1,479,148 | 585,094 | 501 | 2 | 233 | 31.7 |
| 1936 | 6,596 | 1,374,215 | 1,395,090 | 21,691 | 29,597 | 64.8 | 1,740,326 | 701,336 | 509 | 19 | 266 | 33.5 |
| **Northwestern Region:** | | | | | | | | | | | | |
| Chicago & North Western..1937 | 8,388 | 919,464 | 1,050,895 | 24,723 | 22,653 | 59.0 | 1,495,961 | 543,720 | 347 | 157 | 197 | 28.1 |
| 1936 | 8,330 | 1,058,121 | 1,105,384 | 42,789 | 27,000 | 60.3 | 1,772,686 | 650,880 | 404 | 20 | 276 | 38.4 |
| Chicago Great Western.....1937 | 1,450 | 283,616 | 286,240 | 8,767 | 7,385 | 60.3 | 463,426 | 165,594 | 67 | .. | 27 | 28.7 |
| 1936 | 1,450 | 305,618 | 307,213 | 11,308 | 8,588 | 61.5 | 536,386 | 197,231 | 65 | .. | 24 | 27.0 |
| Chi., Milw., St. P. & Pac...1937 | 11,017 | 1,242,076 | 1,292,367 | 52,238 | 30,388 | 59.4 | 2,016,109 | 803,875 | 488 | 71 | 130 | 18.9 |
| 1936 | 11,106 | 1,429,183 | 1,537,042 | 72,662 | 37,380 | 60.5 | 2,432,117 | 980,353 | 454 | 111 | 115 | 16.9 |
| Chi., St. P., Minneap. & Om.1937 | 1,636 | 228,781 | 237,256 | 12,508 | 4,899 | 62.1 | 319,249 | 133,649 | 113 | 10 | 18 | 12.8 |
| 1936 | 1,637 | 239,814 | 249,469 | 13,125 | 5,024 | 60.1 | 327,397 | 126,511 | 82 | 48 | 16 | 11.0 |
| Great Northern .....1937 | 7,975 | 696,689 | 687,525 | 23,000 | 19,607 | 63.5 | 1,229,476 | 486,618 | 328 | 82 | 144 | 26.0 |
| 1936 | 7,997 | 826,695 | 826,987 | 34,646 | 24,849 | 61.7 | 1,596,806 | 654,690 | 341 | 61 | 163 | 28.8 |
| Minneap., St. P. & S. St. M.1937 | 4,277 | 373,328 | 379,308 | 3,641 | 7,363 | 63.6 | 441,924 | 172,459 | 125 | 2 | 24 | 15.9 |
| 1936 | 4,278 | 393,067 | 401,695 | 5,510 | 8,629 | 67.1 | 494,543 | 199,417 | 120 | .. | 29 | 19.5 |
| Northern Pacific .....1937 | 6,423 | 603,557 | 628,406 | 31,619 | 17,050 | 66.6 | 1,051,147 | 443,720 | 327 | 54 | 79 | 17.2 |
| 1936 | 6,429 | 734,284 | 810,613 | 47,071 | 22,368 | 67.7 | 1,330,156 | 566,975 | 365 | 7 | 90 | 19.5 |
| **Central Western Region:** | | | | | | | | | | | | |
| Alton .....1937 | 912 | 202,392 | 208,696 | 1,305 | 3,884 | 57.7 | 263,659 | 104,121 | 71 | .. | 27 | 28.3 |
| 1936 | 912 | 223,864 | 234,135 | 2,664 | 4,919 | 60.1 | 332,832 | 134,631 | 75 | .. | 25 | 25.0 |
| Atch., Top. & S. Fe (incl. 1937 | 13,538 | 1,778,979 | 1,901,513 | 78,251 | 46,302 | 61.7 | 2,931,126 | 969,410 | 602 | 59 | 266 | 28.7 |
| G.C. & S.F. & P. & S.F.).1936 | 13,227 | 1,953,115 | 2,125,154 | 104,129 | 55,617 | 63.1 | 3,454,966 | 1,175,953 | 590 | 61 | 313 | 32.5 |
| Chicago, Burl. & Quincy...1937 | 8,928 | 1,213,740 | 1,247,525 | 47,248 | 31,744 | 58.2 | 2,030,745 | 841,924 | 452 | 13 | 103 | 18.1 |
| 1936 | 8,934 | 1,454,978 | 1,513,651 | 60,110 | 37,542 | 61.8 | 2,318,349 | 993,282 | 465 | .. | 89 | 16.1 |
| Chi., Rock I. & Pac. (incl. 1937 | 8,110 | 1,164,433 | 1,172,848 | 7,734 | 24,269 | 58.4 | 1,565,801 | 565,438 | 378 | 41 | 201 | 32.4 |
| Chi., Rock I. & Gulf)....1936 | 8,129 | 1,229,690 | 1,238,777 | 7,751 | 26,974 | 60.6 | 1,687,693 | 624,344 | 401 | 19 | 249 | 37.2 |
| Denver & Rio Gr. Western.1937 | 2,570 | 291,353 | 329,489 | 42,918 | 7,067 | 60.7 | 470,108 | 187,344 | 162 | 15 | 16 | 8.3 |
| 1936 | 2,576 | 348,350 | 385,838 | 47,162 | 8,151 | 63.9 | 519,310 | 213,375 | 177 | 6 | 14 | 7.1 |
| Southern Pac.—Pac. Lines.1937 | 8,626 | 1,347,258 | 1,461,634 | 159,394 | 42,505 | 61.8 | 2,671,531 | 892,860 | 598 | 27 | 133 | 17.5 |
| 1936 | 8,614 | 1,702,164 | 1,887,600 | 241,931 | 56,316 | 63.6 | 3,480,090 | 1,228,383 | 618 | 6 | 167 | 21.1 |
| Union Pacific .....1937 | 9,912 | 1,728,465 | 1,780,548 | 86,127 | 53,236 | 61.9 | 3,348,908 | 1,195,276 | 555 | 124 | 199 | 22.7 |
| 1936 | 9,918 | 2,052,570 | 2,132,843 | 124,512 | 62,592 | 61.7 | 3,914,760 | 1,392,695 | 583 | 59 | 205 | 24.2 |
| **Southwestern Region:** | | | | | | | | | | | | |
| Mo.-Kansas-Texas Lines ...1937 | 3,282 | 375,757 | 379,674 | 6,064 | 9,548 | 58.2 | 627,049 | 229,866 | 110 | 2 | 85 | 43.1 |
| 1936 | 3,282 | 415,165 | 421,209 | 7,079 | 10,750 | 59.3 | 677,842 | 232,261 | 101 | 24 | 79 | 38.7 |
| Missouri Pacific .....1937 | 7,147 | 1,208,869 | 1,238,754 | 29,257 | 31,979 | 58.2 | 2,178,668 | 832,904 | 406 | 45 | 85 | 15.9 |
| 1936 | 7,143 | 1,334,607 | 1,374,257 | 31,051 | 37,098 | 62.4 | 2,367,070 | 922,519 | 349 | 74 | 113 | 21.1 |
| St. Louis-San Francisco....1937 | 4,847 | 736,707 | 744,168 | 9,198 | 13,313 | 57.2 | 890,374 | 340,595 | 270 | 52 | 67 | 17.2 |
| 1936 | 4,888 | 788,180 | 794,448 | 10,557 | 15,870 | 62.1 | 1,002,627 | 402,988 | 255 | 59 | 72 | 18.7 |
| St. Louis Southw. Lines....1937 | 1,690 | 297,964 | 298,987 | 4,042 | 6,890 | 59.1 | 428,085 | 145,074 | 89 | 14 | 22 | 17.6 |
| 1936 | 1,733 | 334,722 | 339,516 | 4,599 | 8,243 | 61.3 | 499,461 | 172,520 | 107 | 7 | 6 | 5.0 |
| Texas & New Orleans.....1937 | 4,419 | 571,039 | 571,231 | 6,986 | 12,775 | 58.6 | 841,378 | 298,027 | 217 | 26 | 38 | 13.5 |
| 1936 | 4,415 | 682,714 | 686,619 | 10,754 | 16,433 | 65.1 | 1,034,195 | 402,853 | 234 | 20 | 44 | 14.8 |
| Texas & Pacific.....1937 | 1,932 | 317,643 | 317,643 | 1,567 | 8,116 | 53.9 | 561,173 | 176,443 | 88 | 9 | 86 | 47.0 |
| 1936 | 1,944 | 350,783 | 350,783 | 1,938 | 9,562 | 60.5 | 603,285 | 200,384 | 71 | 50 | 92 | 43.2 |

*Compiled by the Bureau of Statistics, Interstate Commerce Commission.* ***Subject to revision.***

## 1937, Compared with December, 1936, for Roads with Annual Operating Revenues Above $25,000,000

| Region, road, and year | Number of freight cars on line: Home | Foreign | Total | Per cent unserviceable | Gross ton-miles per train-hour, excluding locomotives and tenders | Gross ton-miles per train-mile, excluding locomotives and tenders | Net ton-miles per train-mile | Net ton-miles per loaded car-mile | Net ton-miles per car-day | Car-miles per car-day | Net ton-miles per mile of road per day | Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders | Locomotive-miles per locomotive-day |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **New England Region:** | | | | | | | | | | | | | |
| Boston & Albany....1937 | 2,106 | 3,750 | 5,856 | 26.8 | 19,551 | 1,150 | 382 | 19.1 | 270 | 22.1 | 4,188 | 175 | 53.1 |
| 1936 | 2,431 | 4,243 | 6,674 | 24.3 | 20,369 | 1,195 | 417 | 19.0 | 315 | 25.0 | 5,609 | 172 | 64.4 |
| Boston & Maine....1937 | 8,286 | 6,193 | 14,479 | 12.8 | 25,940 | 1,859 | 668 | 20.6 | 381 | 27.9 | 2,794 | 108 | 43.0 |
| 1936 | 7,366 | 8,544 | 15,910 | 14.0 | 26,216 | 1,979 | 747 | 21.1 | 437 | 30.2 | 3,657 | 111 | 48.1 |
| N. Y., New Hav. & Hartf..1937 | 10,200 | 8,267 | 18,467 | 14.1 | 25,516 | 1,784 | 637 | 20.2 | 330 | 26.0 | 3,160 | 112 | 55.3 |
| 1936 | 9,971 | 11,939 | 21,910 | 13.9 | 26,155 | 1,904 | 717 | 20.9 | 371 | 27.1 | 4,181 | 113 | 62.2 |
| **Great Lakes Region:** | | | | | | | | | | | | | |
| Delaware & Hudson....1937 | 8,137 | 2,592 | 10,729 | 4.0 | 29,271 | 2,097 | 960 | 29.9 | 629 | 35.2 | 8,344 | 111 | 43.1 |
| 1936 | 7,688 | 3,525 | 11,213 | 3.6 | 30,742 | 2,237 | 1,092 | 30.8 | 778 | 38.6 | 10,440 | 117 | 49.8 |
| Del., Lack. & Western....1937 | 13,944 | 4,211 | 18,155 | 14.5 | 32,223 | 1,897 | 726 | 23.5 | 436 | 29.4 | 8,412 | 148 | 71.3 |
| 1936 | 13,341 | 6,290 | 19,631 | 17.6 | 32,646 | 1,973 | 791 | 23.6 | 513 | 32.2 | 10,244 | 140 | 75.1 |
| Erie (incl. Chi. & Erie)...1937 | 20,379 | 12,527 | 32,906 | 5.1 | 41,800 | 2,547 | 949 | 23.2 | 595 | 41.2 | 8,450 | 109 | 53.9 |
| 1936 | 18,441 | 19,557 | 37,998 | 2.6 | 42,413 | 2,645 | 1,059 | 24.5 | 651 | 40.5 | 11,031 | 106 | 63.2 |
| Grand Trunk Western....1937 | 5,335 | 5,122 | 10,457 | 15.3 | 29,991 | 1,546 | 531 | 21.8 | 391 | 30.3 | 4,107 | 110 | 73.8 |
| 1936 | 4,413 | 9,989 | 14,402 | 14.1 | 30,797 | 1,659 | 576 | 21.1 | 392 | 29.9 | 5,463 | 102 | 81.0 |
| Lehigh Valley ....1937 | 12,075 | 8,994 | 21,069 | 9.5 | 42,314 | 2,400 | 992 | 26.7 | 486 | 29.0 | 8,067 | 123 | 51.2 |
| 1936 | 12,197 | 10,558 | 22,755 | 6.7 | 38,594 | 2,219 | 955 | 27.1 | 568 | 32.0 | 9,629 | 135 | 60.5 |
| New York Central....1937 | 104,062 | 57,298 | 161,360 | 17.0 | 35,428 | 2,141 | 857 | 27.7 | 456 | 28.8 | 6,761 | 113 | 72.1 |
| 1936 | 91,155 | 66,208 | 157,363 | 13.6 | 35,339 | 2,194 | 914 | 27.9 | 562 | 34.5 | 8,487 | 113 | 85.5 |
| N. Y., Chicago & St. Louis.1937 | 8,913 | 6,414 | 15,327 | 2.6 | 37,469 | 2,038 | 739 | 22.8 | 767 | 55.8 | 6,789 | 98 | 87.6 |
| 1936 | 6,203 | 7,844 | 14,047 | 2.0 | 36,496 | 2,050 | 799 | 23.8 | 1,011 | 66.4 | 8,504 | 102 | 101.4 |
| Pere Marquette ....1937 | 11,154 | 5,425 | 16,579 | 3.8 | 27,084 | 1,687 | 600 | 23.5 | 400 | 29.4 | 3,174 | 105 | 78.4 |
| 1936 | 8,454 | 8,484 | 16,938 | 2.4 | 26,494 | 1,682 | 622 | 23.9 | 508 | 35.6 | 4,176 | 103 | 107.6 |
| Pittsburgh & Lake Erie....1937 | 7,819 | 8,389 | 16,208 | 31.9 | 43,224 | 3,320 | 1,768 | 44.8 | 172 | 6.7 | 12,725 | 102 | 26.2 |
| 1936 | 11,235 | 13,043 | 24,278 | 30.5 | 42,353 | 3,106 | 1,690 | 46.2 | 224 | 8.4 | 22,687 | 91 | 54.1 |
| Wabash ....1937 | 14,688 | 9,130 | 23,818 | 5.0 | 36,198 | 1,828 | 637 | 21.6 | 490 | 37.0 | 4,762 | 123 | 69.5 |
| 1936 | 11,823 | 10,758 | 22,581 | 5.3 | 36,418 | 1,828 | 650 | 21.2 | 613 | 45.1 | 5,575 | 118 | 77.0 |
| **Central Eastern Region:** | | | | | | | | | | | | | |
| Baltimore & Ohio....1937 | 66,870 | 16,455 | 83,325 | 13.1 | 25,797 | 1,952 | 850 | 30.4 | 440 | 24.3 | 5,775 | 157 | 49.7 |
| 1936 | 60,495 | 29,662 | 90,157 | 17.4 | 25,907 | 2,064 | 951 | 32.4 | 537 | 27.0 | 7,754 | 154 | 59.7 |
| Central of New Jersey....1937 | 10,957 | 8,912 | 19,869 | 28.2 | 28,418 | 2,327 | 1,098 | 34.5 | 258 | 13.0 | 7,673 | 149 | 56.6 |
| 1936 | 10,890 | 10,262 | 21,152 | 30.7 | 26,715 | 2,362 | 1,128 | 33.3 | 265 | 13.2 | 8,397 | 149 | 67.2 |
| Chicago & Eastern Illinois..1937 | 3,177 | 3,136 | 6,313 | 1.9 | 29,101 | 1,632 | 703 | 29.8 | 644 | 36.0 | 4,362 | 131 | 59.8 |
| 1936 | 2,570 | 3,679 | 6,249 | 2.9 | 30,448 | 1,773 | 789 | 29.5 | 793 | 42.0 | 5,286 | 127 | 63.2 |
| Elgin, Joliet & Eastern....1937 | 9,136 | 1,755 | 10,891 | 3.5 | 15,808 | 1,708 | 811 | 38.0 | 209 | 9.8 | 5,304 | 142 | 52.1 |
| 1936 | 8,201 | 6,124 | 14,325 | 4.3 | 16,034 | 2,023 | 1,034 | 40.8 | 259 | 10.5 | 8,778 | 124 | 68.5 |
| Long Island ....1937 | 374 | 2,406 | 2,780 | 3.1 | 5,458 | 692 | 266 | 30.7 | 84 | 5.5 | 677 | 335 | 44.1 |
| 1936 | 402 | 2,882 | 3,284 | 2.7 | 5,329 | 729 | 281 | 30.8 | 76 | 5.0 | 696 | 353 | 44.6 |
| Pennsylvania System ....1937 | 200,100 | 51,878 | 251,978 | 15.3 | 34,196 | 2,381 | 1,025 | 29.8 | 336 | 19.0 | 8,456 | 129 | 52.6 |
| 1936 | 184,322 | 65,319 | 249,641 | 17.5 | 33,463 | 2,395 | 1,077 | 31.2 | 462 | 24.3 | 11,385 | 130 | 66.0 |
| Reading ....1937 | 26,523 | 9,261 | 35,784 | 12.4 | 25,446 | 1,971 | 933 | 36.6 | 346 | 16.6 | 8,526 | 144 | 54.0 |
| 1936 | 24,167 | 14,095 | 38,262 | 6.9 | 24,934 | 2,085 | 1,018 | 36.8 | 425 | 19.0 | 10,999 | 154 | 62.8 |
| **Pocahontas Region:** | | | | | | | | | | | | | |
| Chesapeake & Ohio....1937 | 47,579 | 6,561 | 54,140 | 1.3 | 48,690 | 3,337 | 1,782 | 45.4 | 813 | 33.0 | 14,713 | 90 | 55.9 |
| 1936 | 42,942 | 10,248 | 53,190 | 0.7 | 50,152 | 3,661 | 1,975 | 46.1 | 1,091 | 43.0 | 18,809 | 86 | 65.1 |
| Norfolk & Western....1937 | 43,807 | 4,095 | 47,902 | 1.1 | 46,299 | 3,060 | 1,614 | 42.9 | 666 | 26.8 | 14,292 | 115 | 64.5 |
| 1936 | 34,452 | 4,059 | 38,511 | 1.5 | 48,980 | 3,426 | 1,840 | 45.9 | 1,157 | 43.4 | 19,475 | 109 | 79.0 |
| **Southern Region:** | | | | | | | | | | | | | |
| Atlantic Coast Line....1937 | 18,064 | 7,834 | 25,898 | 17.8 | 21,220 | 1,232 | 422 | 19.8 | 322 | 27.6 | 1,619 | 117 | 57.7 |
| 1936 | 18,726 | 10,560 | 29,286 | 19.8 | 20,573 | 1,172 | 381 | 18.5 | 294 | 27.3 | 1,632 | 117 | 65.1 |
| Central of Georgia....1937 | 5,574 | 1,977 | 7,551 | 1.6 | 21,745 | 1,157 | 434 | 22.4 | 431 | 29.6 | 1,723 | 133 | 68.7 |
| 1936 | 3,784 | 3,915 | 7,699 | 3.1 | 21,541 | 1,192 | 466 | 22.0 | 556 | 36.5 | 2,180 | 132 | 81.9 |
| Illinois Central (incl. Y. 1937 | 36,233 | 15,370 | 51,603 | 13.2 | 27,641 | 1,744 | 724 | 29.4 | 653 | 38.9 | 5,198 | 145 | 61.4 |
| & M. V.)....1936 | 32,913 | 21,548 | 54,461 | 20.8 | 26,264 | 1,571 | 662 | 28.1 | 700 | 40.4 | 5,755 | 140 | 71.6 |
| Louisville & Nashville....1937 | 42,787 | 7,934 | 50,721 | 10.8 | 23,043 | 1,510 | 714 | 34.6 | 510 | 25.7 | 5,159 | 143 | 75.2 |
| 1936 | 35,786 | 10,884 | 46,670 | 15.9 | 23,876 | 1,638 | 788 | 34.8 | 695 | 33.9 | 6,508 | 139 | 86.0 |
| Seaboard Air Line....1937 | 12,103 | 5,167 | 17,270 | 1.4 | 25,376 | 1,551 | 563 | 22.3 | 538 | 39.0 | 2,148 | 123 | 63.0 |
| 1936 | 10,001 | 8,236 | 18,237 | 2.2 | 25,065 | 1,547 | 554 | 21.4 | 552 | 40.6 | 2,281 | 126 | 64.5 |
| Southern ....1937 | 21,429 | 16,112 | 37,541 | 9.7 | 21,162 | 1,241 | 491 | 24.2 | 492 | 33.2 | 2,872 | 158 | 55.7 |
| 1936 | 22,345 | 20,912 | 43,257 | 15.7 | 20,916 | 1,277 | 514 | 23.7 | 520 | 33.9 | 3,430 | 156 | 60.7 |
| **Northwestern Region:** | | | | | | | | | | | | | |
| Chicago & North Western..1937 | 40,344 | 18,013 | 58,357 | 6.5 | 25,462 | 1,681 | 611 | 24.0 | 299 | 21.1 | 2,091 | 135 | 48.8 |
| 1936 | 34,884 | 20,697 | 55,581 | 6.2 | 25,859 | 1,700 | 624 | 24.0 | 371 | 25.6 | 2,520 | 137 | 57.8 |
| Chicago Great Western....1937 | 2,897 | 3,294 | 6,191 | 2.3 | 29,825 | 1,637 | 585 | 22.4 | 890 | 65.8 | 3,684 | 147 | 106.9 |
| 1936 | 2,121 | 4,587 | 6,708 | 2.2 | 30,253 | 1,756 | 646 | 23.0 | 975 | 69.0 | 4,387 | 140 | 122.3 |
| Chi., Milw., St. P. & Pac...1937 | 48,266 | 15,413 | 63,679 | 2.2 | 25,982 | 1,632 | 651 | 26.5 | 405 | 25.8 | 2,354 | 135 | 69.4 |
| 1936 | 42,398 | 19,912 | 62,310 | 2.6 | 27,142 | 1,709 | 689 | 26.2 | 506 | 31.9 | 2,847 | 135 | 83.0 |
| Chi., St. P., Minneap. & Om.1937 | 4,205 | 4,998 | 9,203 | 6.3 | 17,740 | 1,412 | 591 | 27.3 | 467 | 27.6 | 2,635 | 123 | 60.7 |
| 1936 | 4,272 | 5,602 | 9,874 | 6.8 | 18,160 | 1,379 | 533 | 25.2 | 434 | 28.7 | 2,493 | 127 | 62.9 |
| Great Northern ....1937 | 38,921 | 9,190 | 48,111 | 5.1 | 26,373 | 1,773 | 702 | 24.8 | 327 | 20.7 | 1,968 | 138 | 45.6 |
| 1936 | 35,084 | 11,469 | 46,553 | 7.9 | 28,845 | 1,942 | 796 | 26.3 | 446 | 27.4 | 2,641 | 136 | 54.4 |
| Minneap., St. P. & S. St. M.1937 | 13,448 | 3,341 | 16,789 | 3.3 | 19,591 | 1,186 | 463 | 23.4 | 336 | 22.6 | 1,301 | 121 | 82.6 |
| 1936 | 12,161 | 4,564 | 16,725 | 5.0 | 20,214 | 1,266 | 510 | 23.1 | 377 | 24.3 | 1,504 | 119 | 90.2 |
| Northern Pacific ....1937 | 32,230 | 4,323 | 36,553 | 7.4 | 26,971 | 1,747 | 738 | 26.0 | 390 | 22.5 | 2,228 | 161 | 51.2 |
| 1936 | 26,797 | 6,568 | 33,365 | 8.7 | 27,888 | 1,819 | 775 | 25.3 | 543 | 31.6 | 2,845 | 158 | 66.6 |
| **Central Western Region:** | | | | | | | | | | | | | |
| Alton ....1937 | 2,684 | 5,306 | 7,990 | 11.6 | 30,177 | 1,311 | 518 | 26.8 | 402 | 26.0 | 3,683 | 140 | 72.6 |
| 1936 | 2,423 | 6,180 | 8,603 | 25.1 | 33,623 | 1,493 | 604 | 27.4 | 501 | 30.5 | 4,762 | 131 | 81.3 |
| Atch., Top. & S. Fe (incl. 1937 | 76,381 | 11,620 | 88,001 | 7.8 | 31,843 | 1,651 | 546 | 20.9 | 354 | 27.4 | 2,310 | 129 | 72.5 |
| G.C. & S.F. & P. & S.F.).1936 | 64,004 | 14,178 | 78,182 | 8.8 | 33,266 | 1,773 | 603 | 21.1 | 490 | 36.8 | 2,868 | 128 | 78.5 |
| Chicago, Burl. & Quincy...1937 | 30,552 | 13,983 | 44,535 | 5.9 | 29,062 | 1,678 | 696 | 26.5 | 618 | 40.1 | 3,042 | 134 | 78.5 |
| 1936 | 26,543 | 16,851 | 43,394 | 5.5 | 28,662 | 1,601 | 686 | 26.5 | 716 | 43.7 | 3,586 | 132 | 97.8 |
| Chi., Rock I. & Pac. (incl. 1937 | 23,654 | 11,058 | 34,712 | 6.1 | 24,522 | 1,347 | 487 | 23.3 | 521 | 38.8 | 2,249 | 151 | 65.0 |
| Chi., Rock I. & Gulf)....1936 | 22,470 | 13,472 | 35,942 | 7.2 | 24,551 | 1,375 | 509 | 23.1 | 562 | 40.1 | 2,478 | 145 | 63.5 |
| Denver & Rio Gr. Western.1937 | 11,910 | 3,664 | 15,574 | 4.4 | 25,197 | 1,623 | 647 | 26.5 | 383 | 23.8 | 2,351 | 174 | 66.7 |
| 1936 | 11,580 | 3,748 | 15,328 | 4.0 | 23,180 | 1,498 | 615 | 26.2 | 442 | 26.5 | 2,672 | 182 | 74.2 |
| Southern Pac.—Pac. Lines.1937 | 35,288 | 27,071 | 62,359 | 5.0 | 32,777 | 2,001 | 669 | 21.0 | 460 | 35.5 | 3,339 | 111 | 71.0 |
| 1936 | 31,721 | 30,352 | 62,073 | 6.5 | 32,141 | 2,060 | 727 | 21.8 | 645 | 46.5 | 4,600 | 115 | 91.3 |
| Union Pacific ....1937 | 43,356 | 17,007 | 60,363 | 12.2 | 40,481 | 1,950 | 696 | 22.5 | 632 | 45.5 | 3,890 | 124 | 71.0 |
| 1936 | 38,516 | 19,950 | 58,466 | 9.9 | 39,479 | 1,918 | 682 | 22.3 | 757 | 55.2 | 4,530 | 126 | 88.3 |
| **Southwestern Region:** | | | | | | | | | | | | | |
| M.-Kansas-Texas Lines ...1937 | 6,115 | 3,145 | 9,260 | 2.8 | 31,577 | 1,676 | 614 | 24.1 | 810 | 57.8 | 2,259 | 93 | 66.5 |
| 1936 | 3,840 | 5,594 | 9,434 | 2.1 | 30,480 | 1,634 | 560 | 21.6 | 774 | 60.4 | 2,283 | 95 | 72.1 |
| Missouri Pacific ....1937 | 18,246 | 18,176 | 36,422 | 2.2 | 31,677 | 1,813 | 693 | 26.0 | 707 | 46.6 | 3,759 | 131 | 82.1 |
| 1936 | 14,727 | 21,819 | 36,546 | 2.3 | 31,593 | 1,785 | 696 | 24.9 | 782 | 50.4 | 4,166 | 127 | 91.8 |
| St. Louis-San Francisco....1937 | 19,491 | 3,814 | 23,305 | 5.1 | 23,984 | 1,214 | 464 | 25.6 | 486 | 33.2 | 2,267 | 148 | 66.5 |
| 1936 | 17,512 | 7,088 | 24,600 | 6.9 | 24,404 | 1,275 | 513 | 25.4 | 534 | 33.9 | 2,659 | 143 | 69.7 |
| St. Louis Southw. Lines....1937 | 2,728 | 2,975 | 5,703 | 2.6 | 26,396 | 1,440 | 488 | 21.1 | 796 | 63.9 | 2,769 | 109 | 84.1 |
| 1936 | 2,680 | 3,784 | 6,464 | 3.0 | 26,867 | 1,498 | 517 | 20.9 | 872 | 68.0 | 3,211 | 110 | 94.1 |
| Texas & New Orleans....1937 | 7,984 | 10,819 | 18,803 | 4.9 | 25,842 | 1,484 | 526 | 23.3 | 500 | 36.6 | 2,176 | 99 | 71.6 |
| 1936 | 6,788 | 12,578 | 19,366 | 6.1 | 27,062 | 1,523 | 593 | 24.5 | 664 | 41.7 | 2,943 | 93 | 80.9 |
| Texas & Pacific....1937 | 4,263 | 4,667 | 8,930 | 2.7 | 29,019 | 1,769 | 556 | 21.7 | 631 | 53.8 | 2,946 | 95 | 62.4 |
| 1936 | 2,426 | 5,288 | 7,714 | 2.5 | 28,149 | 1,725 | 573 | 21.0 | 790 | 62.2 | 3,325 | 95 | 58.8 |



# NORFOLK AND WESTERN

## 2-8-8-2 Type

## Heavy Freight Power

Ten heavy freight locomotives of the 2-8-8-2 type were recently completed in the shops of the Norfolk and Western Railway Company. » » » These mighty Mallets have 57-inch drivers and develop 152,206 pounds of tractive effort simple, and 126,838 pounds compound. The 102¼-inch diameter boiler has a total of 7,431 square feet of heating surface including the superheater, with a grate area of 106.2 square feet. All engine and tender axles are roller bearing. The total engine and tender weight is 961,500 pounds. » » » This heavy duty power is fired by Standard Stokers.

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